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Abstracts

on

MEDICINAL PLANTS IN THAILAND

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THAILAND INSTITUTE OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH

Bangkok 1980

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FOREWORD

Since 1966 the Thai National Documentation Centre (TNDC) has conducted literature searching on Medicinal Plants, as to give service to research workers of the Thailand Institute of Scientific and Technological Research (TISTR), formerly the Applied Scientific Research Corporation of Thailand (ASRCT). The bibliography, which has been compiled, has not been published, however.

In 1979 a request was made by the Thai scientists for information on the work accomplished in this area particularly in Thailand. TNDC then started the programme on the compilation of abstracting bibliography and the book entitled "Abstract on Medicinal Plants in Thailand" has been published for distribution, especially to the participants of the Fourth Asian Symposium on Medicinal Plants and Spices (ASOMP IV), which will take place in Bangkok during September 15-19, 1980.

In the publication "Abstract on Medicinal Plants in Thailand" are incorporated the abstracts of research reports, university theses, as well as articles taken from periodicals. In addition, interesting information on the same plants as can be found in all Thai reference books are also included.

The searching carried out retrospectively from 1979 to as far back as 1949.

Mrs. Chalermvarn Choosup

Director

Thai National Documentation Centre

Bangkok

1980

ABSTRACT ON MEDICINAL PLANTS IN THAILAND

1. AMATAYAKUN, Thanomwang. ต้นคำแย้แนวหรือคำแย้ตัวผู้ (*Acalypha indica* L.) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences). 3, 1961 : 19-25. (In Thai)

Study on description, cross-sections of midrib, stem, root and medicinal uses in detail. - R.K.

2. AMATAYAKUN, Thanomwang. พฤกษวิทยาของต้นทองพันชั่ง (Botanical studies of *Rhinacanthus communis*). วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 5(4), 1963 : 233-244. (In Thai)

Report on botanical descriptions, microscopical characteristic and medicinal uses. - R.K.

3. AMATAYAKUN, Thanomwang. สมุนไพรบางชนิดในประเทศไทย (Some medicinal plants in Thailand.) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 7(2-3), 1965 : 84-91. (In Thai)

Report on botanical description and medicinal uses of *Alstonia scholaris* R.Br. (ต้นแปด, พญาสัตบรรณ, สัตบรรณ), *Acalypha indica* L. (คำแย้ตัวผู้, คำแย้แนว), *Acacia farnesiana* Wild. (กะถินเทศ, กะถินหอม), *Abutilon indicum* G.Don. (ครอบจักรวาล), *Acanthus ebracteatus* Wall. (เหงอกปลาหมอค) and *Albizia lebbek* Benth. (จามจุรี). - R.K.

4. AMATAYAKUN, Thanomwang; CANNON, Jack R.; DAMPAWAN, Pimchit; DECHATIWONGSE, Thaweepol; GILES, Robin G.F.; HUNTRAKUL, Charus; KUSAMRAN, Kosan; MOKKHASAMIT, Mongkol; RASTON, Colin L; REUTRAKUL, Vichai and WHITE, Allan H. Chemistry and crystal structures of some constituents of *Zingiber cassumunar*. Australian Journal of Chemistry 32, 1979 : 71-88.

The novel aromatic compounds cis-3-(2',4',5'-trimethoxyphenyl)-4-((E)-2''',4''',5'''-trimethoxystyryl)cyclohex-1-ene (1), cis-3-(3',4'-dimethoxyphenyl)-4-((E)-3''',4'''-dimethoxystyryl)cyclohex-1-ene (2), a substance assigned the tentative structure cis-3-(3',4'-dimethoxyphenyl)-4-((E)-2''',4''',5'''-trimethoxystyryl)cyclohex-1-ene (3), (E)-4-(3',4'-dimethoxyphenyl) but-3-en-1-ol (5), (E)-4-(3',4'-dimethoxyphenyl)-

but-3-en-1-yl acetate (6), and 8-(3!,4'-dimethoxyphenyl)-2-methoxynaphtho-1,4-quinone (7) have been isolated from the rhizomes of Zingiber cassumunar Roxb. (Zingiberaceae).

The crystal structures of the cyclohexene derivative (1) and the quinone (7) have been determined from X-ray diffractometer data at 295 K and refined by block diagonal least squares to residuals of 0.046 (2099 'observed' reflections) and 0.093 (1246), respectively. Crystals of compound (1) are triclinic, $P\bar{1}$, a 18.027(12), b 10.037(9), c 6.530(5) Å, α 84.22(7), β 81.87(6), γ 85.72(6)°, Z 2. Crystals of the quinone (7) are monoclinic $P 2_1/a$, a 22.89(1), b 8.022(5), c 8.458(5) Å, β 91.98(5)°, Z 4. Although the latter crystal structure determination is imprecise, due largely to the very small size of the crystal available, the solution is unambiguous.

A simple two-step synthesis of the quinone (7) has been achieved. - Authors.

5. AMATAYAKUN, Thanomwang and PHETPHLAI, Darun. การศึกษาทางพฤกษศาสตร์และเภสัชวิทยาของขมิ้นเครือ (Study on botany and pharmacology of Arcangelisia flava) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 16(1), 1974 : 19-26. (In Thai)

Study on botanical description, general characteristic of the root and medicinal uses. - R.K.

6. ANANTASAN, Wallappa and AUSAYAKHUN, Sakchai. การศึกษาผลของน้ำคั้นไหลในการออกฤทธิ์เป็นยาชาเฉพาะที่ (Study of the local anesthetic activity of aqueous plai extract.) เชียงใหม่เวชสาร (Chiang Mai Medical Bulletin) 14(3), 1975 : 249-257. (In Thai with Engl. summ.)

In comparison of the local anesthetic activity of aqueous Plai extract and Lidocaine, the experiments were performed on the toad Sciatic nerve preparation, Reduction in the amplitude of nerve action potential was observed. The potency of Plai was shown to be lower, approximately 1/1500 times than that of Lidocaine. This might be due to the use of crude Plai extract. - Authors.

7. ANANTASAN, Vallappa and KRUANAK, Praphai. การศึกษาผลของน้ำสกัดไหลต่อคลื่นไฟฟ้าของหัวใจของหนูถีบจักรในภาวะปกติและภาวะที่หัวใจเต้นผิดปกติ (An investigation of plai water extract on the electrocardiogram of both normal and chloroform induced cardiac arrhythmic mice. เชียงใหม่เวชสาร (Chiang Mai Medical Bulletin) 15, 1976 : 297-303. (In Thai with Engl. summ.)

After infusion of 100% Plai water extract via left jugular vein of 20 pentobarbital anesthetized mice, it was observed that the extract in the doses of 1.33 ± 0.05 , 3.98 ± 0.05 , 5.46 ± 0.13 , 6.08 ± 0.13 and 7.96 ± 0.09 gm/Kg body weight, caused the EKG changes as follow : T-depression, S-T depression, prolonged P-R interval and QRS complex, ventricular tachycardia which finally the mice died of ventricular fibrillation, respectively.

In 50 chloroform induced cardiac arrhythmic mice, Plai water extract could not exhibit the decrease in rate of mortality as that of quinidine. - Authors.

8. ANANTASAN, Wallapha, and NOPADONRATANAKHUN, Lek. การศึกษาฤทธิ์ทางเภสัชวิทยาของน้ำสกัดพล (ปลาดอย) ต่อกล้ามเนื้อเรียบในหนูขาว ตอนที่ ๑. (A pharmacological study of Plai (Zingiber cassumunar Roxb.) water extract on smooth muscles (Section I.) วารสารสำนักงานคณะกรรมการวิจัยแห่งชาติ (Journal of the National Research Council of Thailand) 12(1), 1980 : 51-68. (In Thai with Engl. summ.)

The cumulative doses of Plai water extract 15% weight by volume were tested on smooth muscles of rat according to an in vitro experiment. The total doses, which completely relaxed (100%) the uterine, intestinal and fundus strips were 0.24, 0.48 and 1.92 g/30 ml of physiological solution respectively. However, the effects of Plai water extract on rhythm; tension and human umbilical cord were not prominent. The uterine and intestinal smooth muscles relaxing effect of Plai water extract could be antagonized by Syntocinon and Acetylcholine respectively.

This study clearly demonstrated that the uterine and intestinal smooth muscles are very sensitive to the effect of Plai. Further investigations for the mechanism of actions of this medicinal plant are indicated. For therapeutic use, this plant may relief the spasm of gastro-intestinal tract and uterine muscles. - Authors.

9. ANKAPHINTHU, Amphai. ระเบิด (Licorice) วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 1(2), 1974 : 134-145. (In Thai)

Study on description, extraction and the use of traditional medicinal plants. - R.K.

10. ANON. การใช้สมุนไพรแก้พิษงูในสัตว์ทดลอง (Medicinal plant for antivenom of snake.) เชียงใหม่เวชสาร (Chiang Mai Medical Bulletin) 15, 1976 : 261-268. (In Thai)

The application of medicinal plants to experimental animal for anti-venom of snake. - R.K.

11. ANUSSORN-NITISARA, Nualchira; YONGRATANASTIT, Thanomsri and WUTHI-UDOMLERT, Mansuang. ยาเตรียมจากกระเทียม (Pharmaceutical preparation of Allium sativum.) วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 6(2), Apr, - Jun. 1979 : 31-38. (In Thai with Engl. summ.)

Preparations from Allium sativum (garlic) prepared by various methods showed an inhibitory effect on the growth of bacteria and fungi. Extraction of fresh garlic clove by Soxhlet and percolation yielded alcoholic extracts. Lyophilization for these extracts yielded dried garlic preparations. Extraction by steam distillation yielded yellowish oil and the emulsion fraction. Preparations of ointment, cream and paste containing 4% of the extract also showed inhibitory effect. Those effects decreased when they were kept for a year. Qualitative identification of garlic oil and dried garlic showed the presence of sulfide groups, unsaturated group and allyl group although they were kept for 6 months in refrigerator. - Authors.

12. ARUNLAKSHANA, Ourai. การศึกษาสมุนไพรรู จ. การศึกษาเภสัชวิทยาของใบขี้เหล็ก (Pharmacological study of the leaves of Cassia siamea). สารศิริราช (Siriraj Hospital Gazette) 1, 1949 : 434-444. (In Thai with Engl. summ.)

The leaves of Cassia siamea yield a crystalline alkaloid (m.p. 95°C.), soluble in ethyl alcohol and in chloroform, insoluble in ether, benzol or acetone, and easily decomposed when heated above 80°C. The hydrochloride is also crystalline (m.p. 120°C.) and easily dissolves in water or ethyl alcohol. Pharmacologically the alkaloid is possessed of a definite depressant action upon the central nervous system, particularly the cerebrum and the spinal cord, as evidenced by neutralising effects upon convulsive actions of metrazol and of strychnine respectively. Rats receiving the alkaloid during 17 days show diminished voluntary activity. Neither antipyretic nor analgesic effect is detected. Other systemic actions are of minor importance. Smooth muscle, in the blood vessels as well as in the gastro-intestinal tract, shows slight increase in tonicity. The heart, isolated or in situ, is little affected beyond a slight primary fall in tonus followed by a little rise. The arterial blood pressure may increase by 10 to 12 per cent. Urinary secretion is definitely accelerated, but the mechanism is obscure. The respiration is apparently unaffected even by very large doses.

Toxicity in general is low; rats recover after receiving the equivalent of 76 gm. of the dried leaves per Kg., and guinea-pigs after 70 gm. per Kg. Sedative effects are demonstrable in man and although headaches of diverse origins are little altered, definite benefit is obtained in pain due to dysmenorrhea. - Author.

13. BAVOVADA, Rapepol. A study of tropane derivatives from thorn apple leaves (Datura metel Linne) and wild yam tubers (Dioscorea hispida, Dennst.) (การศึกษาถึงอนุพันธ์จากพวกโทรเพน (Tropane derivatives) จากใบตำโลงและหัวกลอย) Master of Science Thesis. Bangkok, Chulalongkorn University, 1973, 130 p.

Four alkaloids were isolated from leaves of Datura metel Linne by means of preparative layer chromatographic technique.

The alkaloids found are Scopolamine (main alkaloid), Hyoscyamine, and traces of 2 identified alkaloids, their physical and chemical properties were studied.

Alkaloid occurring in the tubers of Dioscorea hispida Dennst. was isolated and studied. Its physical and chemical properties showed that it belonged to tropane group of alkaloid and identified as Dioscorine. - Author.

14. BOASUB, Laddawan; THEBTARANONTH, Yodhathai; RUCHIRAWAT, Somsak and SADAVONGVIVAD, Chiravat. A new diglucoside from the anthelmintic berries of Diospyros mollis. Tetrahedron Letters. No. 2, 1976 : 105-108.

Study on extraction, chemical compounds, biological and medicinal uses of fresh berry of Diospyros mollis. - R.K.

15. BOONKIRD, Tippan. ร้อยอม (Rayom) กสิกร (Kasikorn) 44(6), 1971 : 443-447. (In Thai with Engl. summ.)

From Foreign Trade Statistics of Thailand (1970), Thailand exported about 112,000 kg. of Rauwolfia serpentina roots valued at about 2.5 million baht. These roots were dug from forests in almost every part of Thailand; mostly from Loei and Pitsnulok. Because people dig up these roots so often a state of root maturity is rarely achieved, thus the root yield is less than as if mature roots were collected. In Thailand there has not yet been any detailed research of R. serpentina. But R. serpentina was grown in India by P.D. Varadarajan whose detailed results may give some ideas for Thai farmers. - Author.

16. BULINTARATHIKUL, Yalvalux. ผลของสารสกัดจากหัวกวาวเครือขาวต่อระดับแคลเซียมในเซรัมและแผ่นออสติโอไคนของปลายกระดูกทibia ในหนูขาว-หยานเมทีคอนและตัดต่อพาราไทรอยด์ (Effects of Pueraria mirifica crude extract on the serum calcium and the tibial cartilage-plate in the gonado-parathyroidectomized weaning rat.) Master of Science (Pharmacy) Thesis. Bangkok, Kasetsart University, 1978, 63 p. (In Thai with Engl. summ.)

Crude extracts, at 237.65 milligrams, from the tuberous root of the leguminous plant, Pueraria mirifica, were administered subcutaneously into both sexes of intact, gonadectomized and gonado-parathyroidectomized rats. Rats were 22-37 days old at the onset of the experiment and sacrificed there after at the ages of 51-56 days. An 11.32 milligrams of the crude extract were injected daily at altering sites for twenty-one consecutive days.

Results indicated that the crude extract caused an increase in the concentration of serum calcium but caused reduction in the width of the epiphyseal cartilage-plates of the proximal end of the tibia in both sexes of all groups of the rats tested. - Author.

17. BUNKOET, Keson. The chemical constituents of Clinacanthus burmanii (การสกัดสารเคมีจากต้นสารพัดพิษ) Master of Science Thesis. Bangkok, Chulalongkorn University, 1967, 43 p. (In Thai)

Sixty-six grams of crude Clinacanthus burmanii was obtained by extracting 5.8 kg. of powdered dry leaves with petroleum ether. Forty-six grams of the dry product was dissolved in benzene and the solution put through a column chromatography, the absorbed materials were eluted by petroleum ether, ether/petroleum ether (1:19), and ether/petroleum ether (1:9). After repeated fractionations and crystallizations, 4 kinds of substances, m.p.'s 87-88°C, 136-137°C, 168-169°C, and 212-214°C were obtained. Studies of their chemical properties and infrared spectra showed them to be mericyl alcohol, C₃₀H₆₂O, β -sitosterol, C₂₉H₅₆O; stigmasterol, C₂₉H₄₈O; and lupeol, C₃₀H₅₀O. - K.N.

18. BUNNAK, Kliaw. ปากทาด (Artocarpus lakoocha Roxb.) นิเวศวิทยา-เภสัช อายุรวเอท (Nitayasarn Phesat Aryurawet) ฉบับปฐมฤกษ์ 1964 : 23-27. (In Thai)

An article review. Report on medicinal use of Artocarpus lakoocha Roxb., written by Sangiam Phongbunrod, Manu Manmontri, Stang Mongkonsuk and Chanai Samphantharak. - R.K.

19. BURED BAMRUNGKAN. ไม้ดอก ไม้ประดับที่นิยมปลูกก็เป็นสมุนไพร (Flowering plants and ornamental plants can be medicinal plants.) นิตยสาร เกษตร आयुरुเวช (Nitayasan Phesat Aryurawet) 8(3), 1972 : 3-5. (In Thai)

Report on description and medicinal uses of Hydnocarpus anthemintica (กะเบา, กะเบาหน้า, ญาหลุง, แก้วกาหลุง), coffee (กาแฟ) Bauhimia acuminata (ส้มเสี้ยว, เสี้ยวน้อย) Pandanus variegatus Mig. (การะเกดคาง) Tembusu (Fagiæa fragrans - กนเกรา) and Night Flower Jasmin (Nyctanthes arbortristis Linn.). - R.K.

20. BURETHBAMRUNGKAN. ไม้ดอกไม้ประดับที่นิยมปลูกก็เป็นสมุนไพร (Flowering plant and ornamental plant can be medicinal plant.) นิตยสาร เกษตร आयुरुเวช (Nitayasan Phesat Ayurawet) 8(2), 1972 : 5-6. (In Thai)

Report on description and medicinal uses of Wattle (กะถินเทศ, กะถินหอม), Diehrostachys cineria De (กะถินพม่าน, กะถินพวง, นมเสื่อ, ทางเสื่อ), Ylang-ylang (ญี่ระคิงงาไทย, ญี่ระคิงงาใหญ่) and Boneo mahogany (ญี่ระทง, ทง, ส่ารภทะเล). - R.K.

21. CAIN, J.C. Mirogestrol : Oestrogen from Pueraria mirifica (กวาว). วารสารวิทยาศาสตร์ (Science) 15(4), 1961 : 1-9. (In Thai)

Description on the properties, analysis by X-ray crystallography and medicinal uses of miroestrol which is extracted from Pueraria mirifica. - R.K.

22. CASEY, T.E., DOUGAN, J., MATTHEWS, W.S. and NABNEY, J. Essential oil of "phlai", Zingiber cassumunar, Roxb, from Thailand,. Tropical Science 13(3), 1971 : 198-202.

An experiment examining the constituents of the essential oil of Zingiber cassumunar from Thailand is described. Using the column chromatographic technique of separation followed by purification by gas chromatography, some 26 constituents could be separated. It was shown that Z. cassumunar oil contains a considerable proportion, about 35%, of the tertiary alcohol terpinen-4-ol. This alcohol is widely used in artificial geranium, pepper, rose and other oils including artificial citrus and spice oils. - Trop. Abstr. 27, 1972.

23. CHAIDI, Samli; PHAWOWAT, Raphiphon; WITHAYANATPHAISAN, Sunthri and CHAICHANTHIPYUT, Chaiyo. ไม้สมุนไพร เล่ม ๑. (Medicinal plants, part 1) รายงานผลวิจัยของโครงการพัฒนาเทคนิคการทํายาสมุนไพร มค. ๒๕๒๑-กย. ๒๕๒๒ (Research report of Adaptive Technology for Herbal Drugs January 1978 - September

1979.) Bangkok, Chulalongkorn University, Faculty of Pharmacy, 1979, 189 p.

Provide general information on medicinal plants, morphology, preparation and usage of drugs. The chemical constituents found in each medicinal plant were shown here. - K.P.

24. CHAIMONGKON, Choei. วิถีใช้สรรพคุณยาหัวกวาวเครือ (Medicinal use of Rauwolfia serpentina.) Bangkok, Siriaksorn Publishing, 21 p. (In Thai)

Describe the morphology of 3 different varieties of Rauwolfia serpentina root, white, red and black color. The preparation and properties of medicine containing R. serpentina root are presented here..- K.P.

25. CHAIPAYUGPUN, White. Preliminary X-ray crystallographic study of certain chemical constituents of Stemona roots. (การวิเคราะห์โครงสร้างผลึกของสารสกัดจากรากหนอนตายอยากรโดยรังสีเอกซ์) Master of Science Thesis. Bangkok, Chulalongkorn University, 1970, 43 p.

Crystallographic data of stemonone ($C_{19}H_{14}O_8$) crystals were determined from rotation and Weissenberg photographs. It is found that the crystal is triclinic with lattice constants $a = 12.73 \text{ \AA}$, $b = 9.90 \text{ \AA}$, $c = 8.25 \text{ \AA}$, $\alpha = 105^\circ 14'$, $\beta = 90^\circ$, $\gamma = 124^\circ 42'$. The space group is either PI or PT and the unit cell contains two molecules. The calculated and observed density are 1.519 gm/cm^3 and 1.514 gm/cm^3 respectively at 27.5°C . - Author.

26. CHAIVHANTIPYUTH, Chaiyo การศึกษาทางพฤกษเคมีของใบที่แห้งและใบที่แห้งอเมริกัน (A phytochemical study of the leaves of Cassia siamea Lamk. and Cassia spectabilis Dc..) Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, Faculty of Pharmacy, 1978, 155 p.

The young leaves of Cassia siamea Lamk. (Caesalpinia-ceae) was extracted, the yellow needle crystals were isolated and identified as barakol (3a,4-dihydro-3a,8-dihydroxy-2,5-dimethyl-1,4-dioxaphenalene) 0.1% yield. Cassine and probably iso-6-cassine, the piperidine 3-ol alkaloids were isolated from the leaves of Cassia spectabilis DC. by means of preparative thin layer chromatography. The physical and chemical properties of barakol, cassine, and probably iso-6-cassine were studied. - Author.

27. CHANSIRISRI, Wara; PANTHONG, Amphai and TEJASEN, Panee. Preliminary study of pharmacological effects of kloi (*Disocorea* sp., Dioscoreaceae). เชียงใหม่เวชสาร (Chiang Mai Medical Bulletin) 14(2), 1975 : 123-130. (In Thai with Engl. summ.)

Aqueous extract of Kloi possesses no effect on the body weight of rats after 4 months of oral administration. Furthermore, the red blood counts, the hematocrit values and the blood smears of the experimental animals show no significant differences from control. Kloi appears to have very little depressive effect on these animals, this is shown by its effect which had no significant difference on the pentobarbital sleeping time when compared with the control group. - Authors.

28. CHANTARATHAM, Amphawan. The studies of pharmacological action and the antagonistic effect of WAN NGU (*Curcuma* sp., Zingiberaceae) on the action of Thailand cobra venom (*Naja naja siamensis*) at the neuromuscular junction, and on the cardiovascular and respiratory systems. Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1970, 80 p.

Neurotoxin and cardiotoxin are the major components of cobra venom. The cause of death from cobra venom is peripheral respiratory paralysis due to a neuromuscular blocking effect of the venom rather than due to cardiovascular failure. In studying the neuromuscular effect, an intact gastrocnemius-tibial nerve preparation was used in pentobarbital anesthetized dogs. Neostigmine caused an antagonistic effect to the neuromuscular block of cobra venom by a competitive inhibition at the same receptor site and/or by its properties as a cholinesterase inhibitor.

Wan ngu exerts its antagonistic effect on cobra venom at the neuromuscular junction by a competitive antagonism at the same receptor site associated also with a chemical antagonism. The effective dosage of wan ngu (0.2 ml/Kg body weight) administered intravenously does not show any cardiovascular and respiratory changes. - K.N.

29. CHEMPANICH, Krungkrai and TUCHINDA, Prasertsak. เภสัชวิทยาของใบยี่โถไทย (Pharmacological effect of Yi-To Thai (*Nerium odorum*. Soland) สารศิริราช (Siriraj Hospital Gazette) 26(7), 1974 : 1333-1342. (In Thai with Engl. summ.)

In Studying the pharmacological effect of Yi - To Thai (Nerium odorum, Soland), the infusions made from powdered-dried leaves were used in guinea pigs and pigeons. It was found that the effect was similar to that of digitalis leaves. - Authors

30. CHIANGTHONG, Theb. การวิจัยทางเคมีและปัญหาข้อขัดข้องเกี่ยวกับการวิจัยสมุนไพรไทย (Chemical analysis and problem of the research in medicinal plant.) วารสารวิทยาศาสตร์ (Science) 31(11), 1977 : 47-51. (In Thai)

Description on the problems of research work in medicinal plants in Thailand. - R.K.

31. CHIANGTHONG, Theb and HAYODOM, Manida. การศึกษาสารประกอบต่าง ๆ ในหัวกวาว (Constituents of the tuberous roots of Pueraria mirifica) Bangkok, Chulalongkorn University, Department of Chemistry, 1974, 11 p. (In Thai)

Report on extraction, chemical constituents and medicinal uses of Pueraria mirifica. - R.K.

32. CHIANGTHONG, Theb and KOKPHON, Udom. สารประกอบในใบประยงค์ (Chemical constituents of Aglaia odorata). Bangkok, Chulalongkorn University, Department of Chemistry, 1974, 8 p. (In Thai)

Report on extraction, chemical composition and medicinal uses. - R.K.

33. CHIANGTHONG, Theb and PHAK-KASEM, Wichit. สารประกอบเคมีบางอย่างที่มีในรากหนอนตายอยาก (Chemical composition in the root of Stemona tuberosa.) วารสารวิทยาศาสตร์ (Science) 31(11), 1977 : 33-34. (In Thai)

Report on description, alkaloids, active ingredient and medicinal uses of Stemona tuberosa. (หนอนตายอยากหรือกระเพียด). - R.K.

34. CHIANGTHONG, Theb; THONAWANIK, Tophong and UAPRASOET, Wichit. น้ำมันมะพอก ภาค ๑, (The oil of Parinaria anamense, Hance seed. Part I.) บทความตอนผลงานวิจัย ๒๕๑๘ - ๒๕๒๐. จฬาลงกรณ์มหาวิทยาลัย (Abstracts 1975-1977 Chulalongkorn University) Bangkok, Chulalongkorn University, 1978, p. 127. (In Thai)

The oil of Parinaria anamense, Hance. seed was conjugated acid oils. The conjugated acid component was lower than tung oil but higher than dehydrated castor oil. The sample of P. anamense, Hance. was tested. The result showed that its hydroxyl value was too low to have hydroxy acid component.- Authors.

35. CHIRAWONG, Wichian. สมุนไพร-โถงเหียง, โถงน้ำเตา, โถงพุงปลา, โถงสอ (Lovage, Rheum, Indian nutgall and Angelica anomala.) วารสารองค์การเภสัชกรรม (Warasarn Ongkan Phesatchakam) 1(1), 1975 : 67-74. (In Thai)

Description, composition and medicinal uses of four medicinal plants are reported. - R.K.

36. CHIRAWONG, Wichian. สมุนไพร โถงกะถิ่ง (Medicinal plants- Nux vomica N.F.) วารสารองค์การเภสัชกรรม (Warasan Ongkan Phesachakam) 1(1), 1975 : 76-82. (In Thai)

Report on history, description, composition and medicinal uses of Nux vomica N.F. (โถงกะถิ่ง หรือ แผลงใจ), Saussurea lappa Clarke (Costus - โถงกระตัก) and Anacyclus pyrethrum L.DC. (Pellitory - โถงกกกร้า). - R.K.

37. CHIRAWONG, Wichian. สมุนไพร-โถงกานพร้าว, โถงเขมา, โถงตีแมว, โถงจุฬาลำพาและ โถงทวนว (Medicinal plants - Picrorrhiza, Atractylis, Rhemannia, Herba Artemisiae and Selinum.) วารสารองค์การเภสัชกรรม (Warasan Ongkan Phesachakam) 1(1), 1975 : 33-40. (In Thai)

Report on description, composition, and medicinal uses of five medicinal plants. - R.K.

38. CHIRAWONG, Wichian and TANTIWAT, Phayom. ยาสมุนไพรจากตำรายาโบราณ (Medicinal plant from traditional drug resipe). วารสารวิทยาศาสตร์ (Science) 33(11), 2522, 39-43. (In Thai)

Review of literatures on medicinal plants from traditional drug books, such as Cinnamomi cortex (อบเชยจีน), Pinelliae tuber (โถงข้าวพอก), Zingiberis rhizoma (ขิง), Glycyrrhizae radix (ชะเอมจีน) and Ginseng (โสม). - R.K.

39. CHORADOL, Tawalya; TEERATHORN, Bundit and DHORRANINTRA, Boonchua. ฤทธิ์ลดน้ำตาลในเลือดของน้ำสกัดเถาตำถั่ง (The hypoglycaemic effect of Coccinia indica extract, สารศิริราช (Siriraj Hospital Gazette) 24(6), 1972 : 933-941. (In Thai with Engl. summ.)

Results oral administration of alcoholic extract of Coccinia indica stem (2.5 and 5.0 g/kg) on blood glucose levels in rabbits with alloxan diabetes, disclosed that the hypoglycaemic response began about one hour after administration and the action persisted through the six-hour period of the study. The effectiveness was estimated to be 52.8 and 55.2 per cent of tolbutamide (500 mg/kg) in respect of the dosage.

The discrepancy of results from those obtained by Mueller-Oerlinghausen et al. is believed to be due to the difference in materials and methods between the two studies. - Authors.

40. CHULKARAT, Prapassorn; ATISOOK, Panit and KOLATAT, Thongchatr. การศึกษาฤทธิ์ทางเภสัชวิทยาของชุมเห็ดไทย (Study on the general actions of Cassia tora Linn.) สารศิริราช (Siriraj Hospital Gazette) 24(10), 1972 : 1559-1571.

This paper describes on the pharmacological properties of the glycoside of Cassia tora Linn. The main actions are :-

1. A direct stimulating action on the smooth muscle of the frog stomach and the guinea pig ileum.
2. A direct depressive action on the isolated frog heart.
3. A marked increase in the urinary flow with a decrease in renal blood flow in dogs injected with the extract, suggesting that the action might be on the tubular function. - Authors.

41. CHULKARAT, Prapassorn and KOLATAT, Thongchatr. The mechanism of hypotensive action of Kinchai (Chinese celery). Mahidol University Annual Research Abstract 1978. Bangkok, Mahidol University, 1978; p. 49.

Two doses of 10% decoction of Kinchai (Apium graveolens Linn.) was given orally to 10 anesthetized dogs at one hour interval. The hypotensive action was observed in all subjects about 30 minutes after the first administration. The maximum effect was about one hour after the onset of the action, and the total duration was about 3 hours. The decrease in cardiac output was significantly observed but the peripheral resistance was not affected. It was possible that the mechanism of action may be on the cardiac contractility. - Authors.

42. CHUMSI, Phanipha. พืชจำพวกคล้าโพง (Datura stramonium) วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 2(2), 1975 : 263-267. (In Thai)

Report on history, botanical description, extraction of alkaloids and medicinal uses. - R.K.

43. CHUMSRI, Phannipha; PONGPAN, Arome; TAWORASATE, Tida and MAUNWONGYATHI, Payow. Screening of Thai medicinal plants for antimicrobial activities. Mahidol University Annual Research Abstract 1979. Bangkok, Mahidol University, 1979, p. 120.

Two hundred and four higher plants distributed in Thailand have been searched for the antimicrobial activities. In order to verify the properties of Thai medicinal plants purported to have antimicrobial activities and to promote the usage of Thai folk medicines.

The plants tested were screened from texts of Thai folk medicines, from telling by the Thai ancient medicine practitioners and natives. The selected plants were extract with alcohol, chloroform and petroleum ether. The crude extract samples were then tested for their antimicrobial activities by employing paper disc diffusion method against seven microorganisms; two gram positive bacteria (1) Staphylococcus aureus ATCC 25923 (2) Bacillus subtilis ATCC 6633, three gram negative bacteria (3) Salmonella typhi Bangkok (4) Shigella flexneri type 1 b (5) Escherichia coli ATCC 25922, one acid-fast bacterium (6) Mycobacterium smegmatis ATCC 607, and one yeast (7) Candida albicans A-CC 10231. Streptomycin 10 mcg/disk, Chloramphenicol 30 mcg/disk and Nystatin 100 mcg/disk served as the standard references. The plants showing high or satisfactory range of antimicrobial activities as expressed from the zone sizes were tested further for their MIC against the same seven organisms.

Certain phytochemical constituents possessed by the plants have also been tested for: such as alkaloids, tannins, polyphenols, polycyclic compounds (saponins and sterols) and anthraquinones. - Authors.

44. DECHATIWONG, Thaweephon; KANCHANAPHI, Phanida and NISHIMOTO, Kazumitsu. Isolation of active principle from Ya-nang. วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 16(2), 1974 : 75-81.

Report on extraction, isolation and the result of medicinal uses. The root of Ya-nang (Tiliacora triandra Diels.) have been used in antipyretic action. - R.K.

45. DECHATIWONG, Thawiphon and KANCHANAPHI, Phanida. เรื่อง
ของควินิน (Quinine.) วารสารของกรมวิทยาศาสตร์การแพทย์ (The
Bulletin of the Department of Medical Sciences) 16(3),
1974 : 147-157. (In Thai)

Report on extraction of 4 alkaloids : quinine, quini-
dine, cinchonine and cinchonidine from the bark of cinchona
and their result. - R.K.

46. DEPARTMENT OF MEDICAL SCIENCES. พญอนตยาชอยาก (Non-tai-
yak- Clitoria hanceana) วารสารของกรมวิทยาศาสตร์การแพทย์
(The Bulletin of the Department of Medical Science) 14(1),
1972 : 1-29.

Describe botanical description, histology, extrac-
tion, pharmacology, toxicology, method for anti-inflamma-
tory action, anti-pyretic action and other medicinal uses.
- R.K.

47. DEPARTMENT OF MEDICAL SCIENCE. Report on the Thai medi-
cinal plants research project 1976-1970. Department of
Medical Science, Ministry of Public Health, Published in
Tokyo sponsored by OCTA, Japan, August 1971, 85 p.

Contain the review on the Thailand - Japanese co-
operation in 1964-1970, record of consultation between
Thailand and Japanese Authorities, list of Japanese
experts, Thai trainees and equipments provided, organi-
zation of research, details of activities and list of
reprints of papers published by Thai Trainees in Japan.
- K.P.

48. DEPARTMENT OF MEDICAL SCIENCE. เมล็ดสารฟักทิน (Studies on
Sophora tomentosa seed.) วารสารของกรมวิทยาศาสตร์การแพทย์
(The Bulletin Department of Medical Science.) 13(4),
1971 : 1-18. (In Thai)

Description and medicinal uses of Sophora tomentosa
are reported. The seeds contained 4 alkaloids, namely
matrine, methylcytisine, cyticine and matrine N-oxide.
Cyticine is toxic affecting circular system of ventricular
extrasystoles and increasing respiration rate and blood
pressure. - R.K.

49. DHANMARNONDA, Pricha. ความรู้เบื้องต้นเกี่ยวกับพญาครุฑ (An intro-
duction to Imperata cylindrica) Bangkok, Kasetsart Univer-
sity, Faculty of Forestry, Research Note no.11, 1972,
15 p.

Imperata cylindrica is a monocotyledonous weed, propagated through rhizomes and seeds. It grows almost in every condition of soil and is commonly found in rubber, tea and coffee estates, coconut and palm groves as well as in other tropical plantations. It is dangerous, causing damage to farmers. Its leaves are useful for mulching house roof, making paper pulp and for soil erosion resistance, etc. Besides, young leaves can be converted into animal feeds, but with low percentage in protein. If it is mixed with Panicum repens L., it will turn to be a good pasture. Substance extracted from its root and rhizome is used as tonic and implemented medical preparation. Dried leaves are used for packing some export goods. But on the contrary, it endangers plants vitally, resulting in slow growth. - R.P.

50. DHORRANINTRA, Boonchua and SANGSIRINAVIN, Chavengkiat. Cardiovascular effects of Centella asiatica glycoside. Mahidol University Annual Research Abstract 1979. Bangkok, Mahidol University, 1979, p. 66. (Paper presented at the Scientific Meeting of the Pharmacological Therapeutic Society of Thailand, Bangkok, April 1978)

The yellowish powder glycoside was extracted from the dry whole plant of Centella asiatica (BOA-BOK). Thin layer chromatography revealed a single spot of glycoside with the Rf value of 0.3.

Intravenous administration of the glycoside solution produced a marked fall of blood pressure and decrease in heart rate in both anesthetized dogs and rats. The actions were recovered completely within a few minutes. By perfusion of the blood vessel in isolated rabbit ears, the glycoside caused direct relaxation of the vascular smooth muscle. The glycoside also decreased the force and rate of cardiac contraction in isolated perfused rabbit hearts. These potent cardiovascular actions could not be blocked by atropine, hexamethonium, propranolol or antihistamine. The glycoside itself could not block the ganglion or the alpha - adrenergic receptor. Therefore, it is safe to conclude that, the Centella asiatica glycoside caused hypotension and cardiodepression by direct actions on the vascular smooth muscle and the heart. - Authors.

51. DISYABOOT, Pornsawarn. Screening of antibacterial properties in certain Thai medicinal plants. (การศึกษาคุณสมบัติการฆ่าเชื้อโรคของสมุนไพรไทยบางชนิด) Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, 1974, 152 p.

Many Thai medicinal plants which are commonly compounded in each preparation of local remedies are reasonably believed to be active against bacteria. Antibacterial properties of 63 species belonging to 35 families of vegetable kingdom have been evaluated against eight representative microorganisms which are suspected to be the cause of many diseases. The inhibitory properties of the selected medicinal plants tested against the microorganisms by Disc Diffusion Method are in high percentage effective.

The values of Minimal Inhibitory Concentration (MIC) from the experiments are higher than those from antibiotic control but they can still be lowered by purifying crude extracts until active substances are obtained. Most of active antibacterial extracts showed negative to chemical tests because the active substances may belong to other groups than alkaloids and glycosides tested of, because of the instability of the active substances. Ethereal extract has the highest effective ratio while water extract has the lowest one. - K.N.

52. GOEPEL, C., KUERTEN, S.V.; YUPRAPHAT, T.; PACHALY, P. and ZYMALKOWSKI, F. Alkaloids from the Thai drug Krung Kha Mao. Planta Medica 22(4), 1972 : 403-411.

The main alkaloid tetrandrine was isolated from the indigenous drug of Thailand, Krung Kha Mao (Menispermaceae), and identified through spectra, decomposition and partial synthesis. - Biol. Abstr. 56, 1973.

53. GRITSANAPAN, Wande. การศึกษาทางพฤกษเคมีของใบไม้เหล็กเลือดและของใบกล้วยพฤษ (A phytochemical study of the leaves of Cassia timoriensis Dc. and of Cassia grandis L.) Master of Science (Pharmacy) Thesis, Bangkok, Chulalongkorn University, 1978, 105 p.

By mean of silica gel column chromatography, barakol (3a, 4-dihydro-3a, 8-dihydroxy-2, 5 dimethyl-1, 4-dioxaphenalene) and aloemodin, an anthraquinone genin were isolated from the leaves of Cassia timoriensis DC. and of Cassia grandis L. respectively. - Author.

54. HAYODOM, Manida. Constituents of the tuberous roots of Pueraria mirifica. (สารเคมีบางอย่างในหัวกวาว) Master of Science, Thesis. Bangkok, Chulalongkorn University, 1971, 33 p. (In Thai with Engl. summ.)

Roots of Pueraria mirifica, collected in Chiang Mai Province, were dried, ground, and then continuously extracted with methanol for several days at the boiling point of the solvent. The precipitate formed was dissolved in petroleum ether and then filtered. Fractional recrystallizations of the petroleum ether solvent yielded two colourless crystals, one with m.p. 164-165°C and the other with m.p. 82°C. The residue remaining after extraction with petroleum ether was dissolved in an excess of benzene. This produced a white precipitate, which upon recrystallization from acetone yielded pure crystals, m.p. 93-94°C.

Chemical, IR, and N.M.R. tests indicated that the crystals with m.p. 164-5°C were steroids. Mass spectrum data indicated that the crystals were a mixture of two steroids, 5, 23-stigmastadien-3 β -ol and β -sitosterol. The crystals with m.p. 82°C were found to be a mixture of two straight chain alcohols, C₂₉H₆₀O and C₃₁H₆₄O. The crystals with m.p. 93-94°C were found to be an ester of glycerol. - K.N.

55. HENSANGHONGS, Patana. The chemical constituents of the skin and leaf waxes of Musa acuminata (Kluai (Kluai) Namwa) Balbisiana cultivar Namwah. Master of Science Thesis. Bangkok, Chulalongkorn University, 1965, 73 p.

A chemical investigation of the leaf and skin waxes of Kluai Namwa was carried out with a view to finding chemicals of industrial importance. Chromatographic separation of the unsaponifiable matter of the leaf wax using aluminium oxide and silica gel as adsorbents afforded a steroidal fraction, which contained β -sitosterol as the major component, and a long chain diol identified as 1, 20-eico-sanediol.

The skin wax of this plant deposited impure ceryl cerotate, m.p. 75-78°C. in an amount of about 10% by weight of the wax, from a solution of the wax in the mixture of chloroform and methanol. Chromatography of the impure ester over aluminium oxide furnished pure ceryl cerotate, m.p. 79-80°C. Hydrolysis of the chloroform and methanol soluble portion of the wax followed by

chromatography of its unsaponifiable matter over aluminium oxide yielded a steroidal fraction, about 9% by weight of the wax, which contained 24-methylenecycloartanol. Isolation of this compound was accomplished by means of repeated chromatography of its acetyl derivative. - K.N.

56. HOFFSTADT, B.; MOECKE, D.; PACHALY, P and ZYMALKOWSKI, P. An alkaloid from the Thai-drug Krung Kha Mao (Menispermaceae) : II. Isolation and structural determination of new berbamine-alkaloids. Tetrahedron 30(2), 1974 : 307-310. (In Ger. with Ger. and Engl. summ.)

A new berbamine alkaloid monomethyltetradrinium chloride was isolated from the Thai-drug Krung Kha Mao (Menispermaceae). The structure of this alkaloid is determined by its spectral data and the partial-synthesis from tetradrine. -Biol. Abstr. 58, 1974.

57. HONGVAREEWATANA, Usana. การศึกษาสรรพคุณของมะแว้งเครือ (Solanum sanitwongsei Craib) และมะแว้งต้น (Solanum trilobatum L.) ทดการลดระดับน้ำตาลในเลือดของสัตว์ทดลอง (Study on the alleged hypoglycemic activity of Solanum sanitwongsei Craib. and Solanum trilobatum L. in experimental animals.) Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, Faculty of Pharmacy, 1975, 62 p. (In Thai with Engl. summ.)

Traditional, old-styled Thai doctors and some diabetic patients have believed that the berries of S. sanitwongsei and S. trilobatum may be used as the hypoglycemic agents. To prove this belief, the blood sugar levels of normal healthy rabbits and of rabbits receiving S. sanitwongsei extract, S. trilobatum extract, chlorpropamide, or distilled water, were determined, using the o-toluidine method. The extracts were given either as single doses (5 g/kg or 10/kg), once daily for three days (5 g/kg/day), or once daily for seven days (10 g/kg/day). Chlorpropamide and distilled water served as positive and negative controls.

The results of this present study indicated that the aqueous extracts of the berries of S. sanitwongsei and of S. trilobatum, and the alcoholic extract of the berries of S. sanitwongsei produced weak, transient, and inconsistent hypoglycemic effect in normal healthy rabbits.

These extracts should be further investigated under the condition of experimental diabetes. - Author.

58. INDATANUVATANA, Anongpan. A preparation of stable dosage forms of the Diospyros mollis extract. Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University; 1969, 66 p.

Active principles of Diospyros mollis fruit were extracted by using ethyl alcohol 95% and precipitated by using acetic acid 10%. The dried precipitated was kept in vacuum ampoules.

Dosage forms of Diospyros mollis extract were prepared in the following forms : power, granules (under nitrogen atmosphere) compress tablets, press-coated tablets and film-coated tablets; and were kept in various enclosures such as clear glass bottle, amber glass bottle, aluminium foil, paper with polyethylene lining and aluminium foil with polyethylene lining. The colour change of the finished products was measured by Lovibond Tintometer Type D.

The results obtained indicated that the compressed tablets of Diospyros mollis extract prepared by wet granulation process using 2% W/V of ethyl cellulose in carbon tetrachloride and kept in aluminium foil with polyethylene lining had only a slight colour change which remained stable after having been stored for 240 days. - Author.

59. JAIARJ, Pranee; JINDAVIJUKSNA, Busba and CHEUNKUNAKORN, Nivat. Effect of Jetamulpleungdaeng (Plumbago indica, L.) on the isolated smooth muscle and cardiac muscle. Mahidol University Annual Research Abstracts 1977, Bangkok, Mahidol University, 1977, p. 337.

The effect of the steam distillate of the root of jetamulpleungdaeng (Plumbago indica, L.) containing a mixture of 1,4-naphthoquinone derivatives was studied. Rat oestrous uterus was obtained by a single injection of diethylstilbestol two days prior to use. Increased tone of rhythmic contraction of the uterus was apparent after the application of 0.4 ml. of the distillate (333 mg/ml.). Further increase in tone and frequency of contraction was observed with 0.8 ml. of the distillate, but the tissue failed to respond when using 3.2 ml. of the solution. Enhanced movement of the

rabbit jejunum was obtained after 1.6 ml. of 5% distillate (17 mg/ml.). The marked increase in tonus resulted in spastic contraction when the dose up to 6.4 ml. However, the tissue could recover after washing out the distillate. Depression of the rat atria resulted from all doses of the distillate (333 mg/ml.), especially arrhythmic contraction leading to paralysis of the heart muscle when 3.2 ml. of the solution added.

The present studies examine that the active principle of the root of jetamulpleungdaeng posses stimulating effect on the smooth muscle of the rat uterus and rabbit jejunum, depression and paralysis of the rat atrial muscle. These results suggest the possibilities that jetamulpleungdaeng may be used as an oxytocic agent, an appetizer for stimulating the gastrointestinal secretion. Careful nomitoring of the mother receiving this plant product is essential for the paralysis of the heart may occur. - Authors.

60. JANTARAWARATIT, Sujanya; REUTRAKUL, Vichai and RATANA BANANGKON, Kavi. Estrogenic activity found in the herb Euphorbia hirta (Nom-nom ratchasee). Mahidol University Annual Research Abstracts 1973. Bangkok, Mahidol University 1973, p. 192.

Euphorbia hirta, a herb indigenous to Thailand and belonging to the Euphorbiaceae family, has been used to promote milk production in nursing mothers. Consequently, this study was carried out so as to fractionate, purify and identify the chemical constituents of the herb and to search for pharmacological activity in the purified constituents. Petroleum ether extract of this herb yielded a mixture of long chain hydrocarbons, a long chain ketone, two triterpenoids ('A' and 'B') having carbonyl functional groups, two triterpenoids ('C' and 'D') having hydroxyl functional groups and β -sitosterol. These compounds have been characterized by spectroscopy (UV, IR, NMR). The β -sitosterol obtained has been shown to be identical to the authentic compound. Estrogenic activity, as determined by an increase in uterine protein synthesis in immature mice, has been observed with chloroform and water extracts of the herb and with the purified triterpenoid 'D'. This activity has been found to increase in this order : triterpenoid 'D', water

extract, chloroform extract. The other extracted materials were found to be pharmacologically inactive in this test system. - Authors.

61. JEWERS, K. Constituents of Thai medicinal plants. In: Proceeding 11th Pacific Science Congress, Tokyo, Vol.8, 1966, p. 16.

Recent investigations on the composition of the light petroleum extracts of the Thai medicinal plant *Hora Tau Sanuk* and of the bark of Wrightia tomentosa will be described. These fractions have been found to be rich in esters of triterpenoids; the methods used in the separation and identification of the constituents will be outlined.

Decomposition of esters of triterpenoids on thin layers of silica gel will be discussed, and an account of our attempts to identify the hydrocarbons formed will be given.

The use of Mass Spectrometry and other physical methods in the identification of the constituents of the leaf and skin waxes of the Thai banana plant *Clue namwa* will be reported. The results of these investigations will be compared with previous work carried out by us on the wax obtained from the skins of commercial bananas produced in the Cameroon Republic.

Treatment of the ether-soluble fraction of gamboge, the resin of Garcinia hanburi, with hot methanol has afforded a colorless insoluble fraction which can be separated into two compounds. The formation of these compounds has been found to be associated with a corresponding reduction in the yield of gambogic acid. The results of investigations on the structure of these compounds will be described. - Author.

62. JINDAPRASARN, Sunanta; JOHANSSON, Lars and PICHITAKUL, Nitasna. Extraction and fractionation of the active principle(s) of Loranthus pentandrus L. (kafak-mamuang). II. Bangkok, ASRCT, 1970, 13 p. (Rep. no.2 on Res. Proj: 17/4)

Several methods for the extraction of the leaves of Loranthus pentandrus and for the fractionation of its extracts have been tried. It has been found that

boiling water is the best extraction medium, and of the methods for fractionation of the extracts so far tried, the method involving dialysis is the most promising. The active material is of a very hydrophilic nature and is hard to dissolve in other media than water. Its molecular weight is less than 6,000 and it is not a protein, peptide, or amino acid, and probably not any other compound having a free NH_2 group. - Authors, modified.

63. JIRAWONG, Wichian and TANTIWAT, Phayom. สมุนไพร (Medicinal plants.) วารสารวิทยาศาสตร์ (Science) 31(11), 1977: 35-45. (In Thai)

Describe how to conduct research work in medicinal plants and the related problems. - R.K.

64. JIRAWONG, Wichian and TANTIWAT, Phayom. สมุนไพรไทย (Thai medicinal plant.) วารสารวิทยาศาสตร์ (Science) 31(11), 1977 : 11-28. (In Thai)

Report on the alkaloids and hormones which were extracted from many kinds of medicinal plants; and medicinal uses. - R.K.

65. JIRAWONGSE, Vichira; PHARADAI, Tharadol and TANTIVATANANA, Payom การจัดสรรอัลคาลอยด์อินโดลในพืชบางสกุลแห่งวงศ์- ผกบังพวนอยู่ในประเทศไทย. (The distribution of indole alkaloids in certain genera of Convolvulaceae growing in Thailand.) วารสารสำนักงานคณะกรรมการวิจัยแห่งชาติ (Journal of the National Research Council of Thailand) 9(1), 1977 : 17-21.

This work is an investigation of indole alkaloids in Convolvulaceae plants. Eight genera of Convolvulaceae :- *Argyrea*, *Cuscuta*, *Ipomoea*, *Jacquemontia*, *Murremia*, *Pharbitis*, *Porona* and *Quammoclit* from various localities in Thailand were investigated.

Application of thin layer chromatographic techniques, the indole alkaloids contained in plants from various localities of 20 species were detected and separated. It was found that seeds and leaves of *Ipomoea asarifolia* (Desr.) R. & Sch. and *Ipomoea pes-caprae* (Linn.) Sweet subsp. *brasiliensis* Ooststr. contained indole alkaloids (Lysergic acid derivatives).- Authors.

66. JOHANSSON, Kerstin E. Investigation of a method for blood sugar determination for pharmacological studies on the hypoglycemic active principle(s) of Lagerstroemia speciosa Pers. Bangkok, ASRCT, 1967, 4p. (Rep. no.1 on Res. Proj. 17/7)

Extracts from Lagerstroemia speciosa have to be tested for hypoglycemic active principle(s). The extracts are administered to animals and the reduction of blood sugar determined. A chemical method for blood sugar determination has been worked out for this pharmacological test. The micro-method based on that of Hultman using O-toluidine in glacial acetic acid as a reagent is found to be rapid and accurate and needs a minimum of material and equipment. - Author.

67. JOHANSSON, Kerstin E.; JOHANSSON, Lars E. and PICHITAKUL, Nitasna. Extraction, purification, and quantitative determination of 2, 4, 3', 5'-tetrahydroxystilbene, an active principle of Artocarpus lakoocha Roxb. Bangkok, ASRCT, 1968, 13p. 3 figs. (Rep. no.1 on Res. Proj. 17/6)

Methods to extract and purify 2,4,3',5'-tetrahydroxystilbene from 'mahat' Artocarpus lakoocha Roxb. and its powder extract 'puakhat' were investigated. The yield of 2,4,3',5'-tetrahydroxystilbene (for the purpose of economic evaluation) was also estimated. To be able to study the absorption and excretion in animals of the active principle (after oral administration), a spectrophotometric method for quantitative determination of 2, 4,3',5'-tetrahydroxystilbene in faeces was developed. - Authors.

68. JOHANSSON, Lars and PICHITAKUL, Nitasna. Extraction and fractionation of the active principle(s) of Loranthus pentandrus L. (kafak-mamuang) Bangkok, ASRCT, 1967, 6p. (Rep. no.1 on Res. Proj. 17/4)

Stems and leaves of Loranthus pentandrus L. were minced and extracted separately with boiling water. Some of the aqueous extracts were further fractionated by shaking with chloroform to eliminate chloroform-soluble substances or passed through an aluminium oxide column. The precipitated tannin from some fractions was redissolved in a small amount of water and also tested for active compound(s). Acidic ion exchanger was also used to fractionate the aqueous extracts. The different fractions so prepared, altogether 22, were tested for

hypotensive activity on dogs anaesthetized with barbiturates. It was observed that the hypotensive activity was most pronounced in the basic fraction from the ion exchanger column. The aqueous extracts from leaves and a more pronounced hypotensive effect than the extracts from the stems, and this effect was not reduced by chloroform extraction. - Authors, modified.

69. JOHANSSON, Lars; KASHEMSANTA, Sathit; M.L. MOKKHASHMIT, Mongkol; NGARMWATANA, Watana; SAWASDIMONGKOL, Kamol and SATRAWAHA, Prayuth. Pharmacological studies on the hypoglycemic activity of "Inthanin" (Lagerstroemia speciosa Pers.) leaves. Bangkok, ASRCT, 1972, 21 p. (Rep. no.2 on Res Proj. 17/7)

Aqueous extracts of Lagerstroemia speciosa Pers. leaves were prepared by boiling the ground dry leaves with water. Tannin was then removed from the solutions. Both crude and tannin-free extracts were concentrated by vacuum evaporation. These were then given to rabbits orally and their blood sugar contents were determined at intervals. The results showed conclusively that neither the crude nor the tannin-free extracts thus prepared contained a useful level of hypoglycemic activity. - Authors.

70. JOHANSSON, Lars; NANDHASRI, Pranee and LIMPINANTANA, Chalao. Preliminary study of a heart-active principle from Salix tetrasperma Roxb. (sanun). Bangkok, ASRCT, 1972, 16 p. (Rep. no.1 (revised) on Res. Proj. 17/11)

The leaves from Salix tetrasperma Roxb. have been extracted and the extracts fractionated by column and thin-layer chromatography. The fractions have been tested for heart activity on frog and turtle hearts. The crude extract shows increased cardiac tonus and rate, while some fractions show either increased tonus or rate. The chemical and physical properties of fractions resemble those of the well known heart glycosides. No acute toxic manifestations were observed when the crude extract and some fractions were tested on mice. - Authors.

71. JOHANSSON, Lars; NANDHASRI, Pranee and LIMPINANTANA, Chalao. Study of a heart-active principle from Salix tetrasperma Roxb. (sanun). Bangkok, ASRCT, 1967, 16 p. 7 figs. (Rep. no.1 on Res. Proj. 17/11)

The leaves from Salix tetrasperma Roxb. have been extracted, and the extracts fractionated by column and thin-layer chromatography. The fractions have been tested for heart activity on frog and turtle hearts. The crude extract shows increased cardiac tonus and rate, while some fractions show either increased tonus or rate. The chemical and physical of fractions resemble those of the well-known heart glycosides. No acute toxic manifestations were observed when the crude extract and some fractions were tested on mice. - Authors.

72. KANCHANAPHI, P. การศึกษาทางคานเคมีและเภสัชวิทยาของหนุ้าคา (Chemical and pharmacological studies of rhizomes of Imperata cylindrica Baeuv.) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 8(4), 1966 : 184-192. (In Thai)

Report on extraction and medicinal uses of the rhizomes of Imperata cylindrica. - R.K.

73. KANCHANAPHI, P. and NATORI, S. แก้ว (Cudrania javanensis Trec. (Moraceae).) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 8(3), 1966 : 96-106. (In Thai)

Report on description, extraction and anti-tumor test of Cudrania javanensis Trec. - R.K.

74. KANJANAPOTHI, Duangta. A pharmacological study of certain diuretic action of Minusops elengi (Pikhun) (Phikun). Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1970, 82 p.

Phikun flowers are used as a diuretic by the country people. Intravenous administration of 1%, 5% and 10% phikun flower extract to pentobarbital anesthetized dogs caused significant diuresis as well as saluretic (Na^+ and K^+) responses. A low concentration (1%) of the extract caused an ipsilateral renal response while bilateral renal responses were obtained from a higher concentration (50%) after infusion into the renal artery. Lower concentrations (1% and 5%) of the extract did not cause any changes in arterial blood pressure or in heart rate, but higher concentrations (10%, 30% and 50%) produced hypotension and bradycardia. Phikun flower extract may exert its action in part as do Diamox and Lasix, but with a different mechanism and/or at a different site from those of Mercurhydrin. - K.N.

75. KARNTIANG, Pipat. Structures of tetracyclic, terpenes occurring in *Aglaia odorata* leaves (โครงสร้างของสาร- เทตราไซคลิกเทอร์พีนที่มีอยู่ในใบประยงค์บ้าน) Master of Science Thesis. Bangkok, Chulalongkorn University, 1973, 34 p. (In Thai with Engl. summ.)

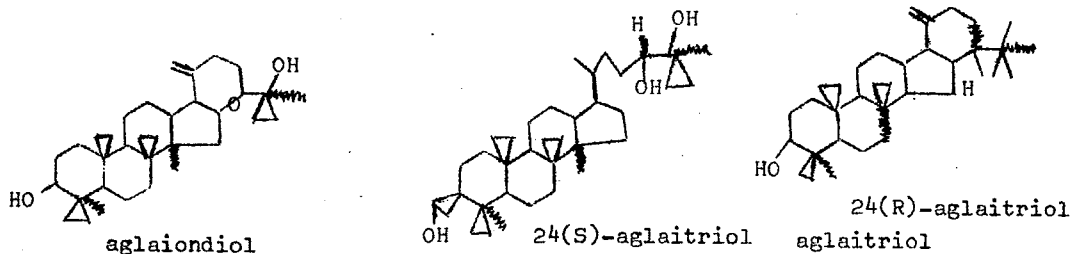
The crude petroleum ether extract of ground dried *Aglaia odorata* leaves was chromatographed on a column of aluminium oxide S. Three important compounds, aglaiol, Aglaiondiol, and aglatriol were collected.

Hydroxylation of aglaiol, m.p. 110-112°C, gave a hydroxy compound, aglatriol, m.p. 182-183°C; the product yielded a triacetate m.p. 164-166°C.

Reduction of aglaiondiol with LiAlH_4 produced another aglatriol, m.p. 175-177°C whose triacetate had m.p. 116-118°C.

Acetylation of natural isolated aglatriol, m.p. 165-167°C, gave two different triacetates m.p. 163-164°C and 116-118 C. The natural isolated aglatriol is a mixture of two epimers, one being 24(S)-aglatriol and the other 24(R)-aglatriol. - K.N.

The structure are :



76. KESORN, Chaloesmi and PAWITPOK, Chitwimon. การศึกษาวิจัยสมุนไพรที่ใช้เป็นยารักษาโรคบิดและ ยาระบาย (Study on medicinal plants used as treatment of dysentery and laxative) วารสารการแพทย์ สมาคมแพทย์ทหารแห่งประเทศไทย (The Association of Military Surgeons of Thailand) 19(1), 1977 : 7-16. (In Thai)

Study on medicinal plants which can be used as treatment of dysentery and also as laxative. Report on extraction, toxicity and medicinal uses of *Holarrhena antidysenterica* (โสมกลาง) and *Terminalia chebula* (สมอไทย), *Cassia fistula* (คน), *Bridelia siamensis* (มะกา), and *Cassia alata* (ขมิ้นเทศ). - R.K.

77. KETSING, Uai. การค้นคว้าสมุนไพรไทย (Study on Thai Medicinal Plants) จดหมายเหตุทางแพทย์ (Journal of the Medical Association of Thailand) 28, 1945 : 47-77. (In Thai)

Describe experimental treatment of malaria by using 28 kinds of medicinal plants, such as Dioscorea hispida (กวาว), Rauwolfia serpentina (ระยอ), Curcuma longa (ขมิ้น), Cassia alata (ใบขมิ้นเทศ) and Terminalia chebula (ส้มไทย). - R.K.

78. KIATYINGUNGSULEE, Niyada; WANGMAD, Manas; SWASDIMONGKOL, Kamol and MOKKHASHMIT, Mongkol. การศึกษาทางเภสัชวิทยาของสารสกัดจากไพล (Some pharmacological studies of active constituent in plai (Zingiber cassumunar Roxb.) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 21(1), 1979 : 13-25. (In Thai with Engl. summ.)

Compound D, the active constituent from hexane extraction of Plai was studied for pharmacological actions. Experiments with the guinea pig ileum using various agonists indicated that compound D inhibited smooth muscle nonspecifically. Compound D also antagonized the action of histamine on bronchial muscle both in vivo and in vitro. It was introduced as an antiasthmatic agent by these actions. However, this substance had some defective actions that it could inhibit rat diaphragm contraction due to phrenic nerve stimulation. Guinea pig atrium contraction (in vitro) was depressed by this compound. - Authors.

79. KITISIN, Trakul. การศึกษาสมุนไพร ๒. บันทึกเรื่องรากระยอ-กมการเจริญอาหาร (Pharmacological studies 2. Notes on Rauwolfia serpentina) สารศิริราช (Siriraj Hospital Gazette) 2, 1950 : 447-450. (In Thai with Engl. summ.)

The root of Rauwolfia serpentina is a well known indigenous drug, being employed in India as a sedative and in Siam as antipyretic. The chemistry and pharmacology have been studied by a number of workers in India and also in Siam. In this country the drug is reputed to be highly effective in increasing the body weight by stimulating the appetite, for which there seems to be no plausible reason from the pharmacological stand-point. The author undertook to clarify this by means of two series of experiments. The first concerned action on gastric motility. Isolated frog stomach responded with increase in amplitude and decrease in frequency, the tonus being unaffected; the effects were unaltered by previous

addition of atropine. In unanesthetized trained dogs intravenous injection of 5 to 10 mg. of the total alkaloids briefly but definitely increased the tonicity and peristalsis of the stomach (balloon method); atropine abolished the effect on the peristalsis but not on the tonus. The second series of experiments dealt with amount of food ingested and rise in body weight. The experiments were made on young mice, kept on a basal diet. The powdered drug was made into small pills each containing 1.0 mg., and fed to a group of twenty mice. The food intake and change in body weight were compared with those of a control group; the result was essentially negative.

The author concludes that the experiments are not sufficient to account for the particular use of the drug, and further investigation is indicated. - Author.

80. KITISIN, Trakul. การศึกษาเภสัชวิทยา ๓. ต้นหญ้าไต่ใบ (Pharmacological studies 3. Phyllanthus niruri) สารศิริราช (Siriraj Hospital Gazette) 4, 1952 : 641-649. (In Thai with Engl. summ.)

The herb Phyllanthus niruri (Euphorbiaceae) with local name "yah-tai-bai" (lit., "weed with seeds underneath the leaf.") finds wide use in the folk-medicine as diuretic, antipyretic, and antimalarial. The last use was investigated during World War II and proved unfounded (O. Ketusinh et al). Elsewhere the herb has been found to contain potash and a bitter principle, "Phyllanthin", poisonous to fish.

In the present investigation ethanol extracts of the plant yielded a neutral, nitrogen-free bitter principle giving strong "alkaloidal reactions", and considerable amounts of potassium chloride (av. 0.9%). The latter being well known, attention was paid solely to the former. It was found to be a strong stimulant of the C.N.S., chiefly the cerebrum, causing epileptiform convulsions in sufficient dosage. Rats and mice responded uniformly to subcutaneous or intraperitoneal injection, while frogs appeared to be resistant and died in depression rather than convulsion. The heart, cold-blooded as well as warm-blooded, excised as well as in situ, was slowed and reduced in contractility. The blood vessels, with the exception of the coronary, dilated by direct action. The arterial blood pressure was diminished in dogs by 10 to 20 mm. Hg. Diuretic action could be demonstrated only with a "fluidextract"

containing potassium chloride as well as the neutral principle, and on man. The effects were more marked when large amounts of water were drunk before or simultaneously with taking of the drug. Non-striated muscle, in the stomach, intestine, blood vessel and uterus, was relaxed by the neutral substance on direct application; skeletal muscle was not affected. Metabolic studies in rats showed rise with big dose, probably from central stimulation, and fall with small dose. The antipyretic action was tried in rabbits treated with typhoid vaccine. The neutral principle appeared to exert some mild effect; the crude extract was more active. No doubt the potassium chloride played a major role. Toxicologic studies indicated that, with the exception of convulsant effects following heavy dosage, the herb was comparatively non-toxic, since the potassium was rapidly eliminated in the diuresis it called forth. - Author.

81. KOKPOL, Udom, and TANGTHONGKUM, Anant, การศึกษาส่วนประกอบทางเคมีและฤทธิ์ต่อต้านโรคมะเร็งของต้นหมากคบน้ำค้าง (Investigation of the chemical constituents and antitumor activity of Oldenlandia diffusa.) รายงานผลการวิจัย เล่ม ๓ คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย (Report on Scientific Research Vol.3, Faculty of Science, Chulalongkorn University) Bangkok, Chulalongkorn University, Faculty of Science, 1978 : 46-58.

The dry whole plant of Oldenlandia diffusa was extracted according to the Wall procedure. Wax, oil, myricyl alcohol and stigmasterol were isolated from the petroleum ether crude extraction. The aqueous fraction was mainly chloride salt of K, Na, Mg, Mn and traces of the chloride salt of Cu, Co, Zn, Ca, Pb. Traces amount of flavanoids were found in the chloroform soluble fraction. The ethanol crude extraction and the chloroform soluble fraction had no significance antitumor activity against P338 Lymphocytic leukemia. - Authors.

82. KOLATAT, Thongchatr and CHULKARAT, Prapassorn. The action of Cassia tora Linn. on renal blood flow. Mahidol University Annual Research Abstracts 1973. Bangkok, Mahidol University, 1973 : p. 10. Also published in Siriraj Hospital Gazette 25, 1973 : 433-444. (In Thai with Engl. summ.)

The action of Cassia tora Linn. on renal blood flow was studied in anaesthetized dogs with either renin depletion or high renin storage. The action was compared

to that of A.M.P. The results obtained were as follows : the renal blood flow in high renin storage dogs was markedly decreased after the injection of Cassia tora, while that in the renin depletion group was unchanged. It was concluded that Cassia tora Linn. decreases the renal blood flow by the "renin-angiotensin mechanism". similar to A.M.P. - Authors.

83. KONOSHIMA, Masao; TABATA, Mamoru; HIRAOKA, Noboru and PECHARAPLY, Daroon. A comparative survey of Thai and Indian Uses of medicinal plants common to both countries. Southeast Asian Studies XV(2), 1977 : 225-262. (In Jap. with Engl. summ.)

Of 954 species of plants which are known to be used medicinally in Thailand, 273 species are also used for medicinal purposes in India. A comparison between Thai and Indian records showed that most of these common plants are used for different purposes in the two countries. This large discrepancy seems to indicate that Thai people developed their own knowledge of medicinal plants independent of any direct influence by Indian medicine, at least in the realm of folk medicine.

Some of the common plants listed in Table 4 which are used for the same specific purposes in both countries may offer interesting materials for pharmacological tests in search of new active principles. - Authors.

84. KUN-ANAKE, Amporn and RAGVATIN, Churairatana. กลูโคไซด์ขมคั้นจากใบกนกราว (Bitter glucoside from leaves of Kan-grau. วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 18(1), 1976 : 1-11. (In Thai with Engl. summ.)

The phytochemistry of leaves of Kan-grau (Fagraea fragrans, Roxb. Loganiaceae) was carried out in this laboratory. This plant is found throughout the Malaysia Peninsular and used in the treatment of some diseases. The results showed conclusively that alkaloid, Gentiaine and bitter glycoside, Swertiamarin were present and could be isolated in a pure form and its acetate formation respectively. The identity of two substances were indicated by NMR spectrum. - Authors.

85. LAUVALERT, Chaiwat. A chemical study on some Thai medicinal plants. Master of Science (Organic Chemistry) Thesis. Bangkok, Mahidol University, 1973, 63 p.

The air-dried leaves of Sapium indicum (Samo thale) were extracted with light petroleum followed by methanol. The methanol extract was then successively extracted in a liquid-liquid extractor with ether and ethyl acetate. Three components were isolated from light petroleum extract. Two of them were lupeol, m.p. 211-212°C, and β -sitosterol, m.p. 135-136°C. Another component was a mixture of long chain hydrocarbons and long chain ketones, m.p. 67-74°C. The etheral extract gave ellagic acid, m.p. above 360°C, and gallic acid, m.p. 259-261°C (decomp.).

The light petroleum extract of the air-dried leaves of Vitex quinata (mak lek mak noi) yielded lupeol, β -sitosterol, and a waxy solid. The infrared spectrum of the waxy solid suggested that it was probably a mixture of long chain ketones. - K.N.

86. LAWRENCE, Brian M.; HOGG, James W.; TERHUNE, Stuart J. and PICHITAKUL, Nitasna. The chemical composition of Ocimum basilicum and Ocimum sanctum. Bangkok, ASRCT, 1971, 20 p. (Rep. no.1 on Res. Proj. 11/4)

The constituents of horapha (Ocimum basilicum L.) and kaphrao (Ocimum sanctum L.) have been identified and quantitatively estimated by gas-liquid chromatography. Furthermore a comparison of the chromatograms obtained from four phenotypic varieties of O. basilicum and one variety of O. sanctum were made. - Authors.

87. LAWRENCE, Brian M.; HOGG, James W.; TERHUNE, Stuart J. and PICHITAKUL, Nitasna. The essential oil of Amomum globosum Lour. Bangkok, ASRCT, 1971, 6 p. (Rep. no.3 on Res. Proj. 11/1)

The constituents of oil of Amomum globosum Lour. have been identified and quantitatively estimated by gas-liquid chromatography. - Authors.

88. LAWRENCE, Brian M.; HOGG, James W.; TERHUNE, Stuart J. and PICHITAKUL, Nitasna. The essential oil of Kaempferia pandurata Roxb. Bangkok, ASRCT, 1970, 8 p. (Rep. no.2 on Res. Proj. 11/1)

The constituents of oil of Kaempferia pandurata Roxb. have been identified and quantitatively estimated by gas-liquid chromatography. - Authors.

89. LAWRENCE, Brian M.; HOGG, James W.; TERHUNE, Stuart J. and PODIMUANG, Verapong. The leaf and peel oils of Citrus hystrix DC. Bangkok, ASRCT, 1970; 8 p. (Rep. no.1 on Res. Proj. 11/5)

The constituents of peel oil (cold pressed) and of leaf oil (steam distilled) of Citrus hystrix DC. have been identified and quantitatively estimated by gas-liquid chromatography. - Authors.

90. LIMPINUNTANA, Chalao and CHAI-ARJ, Pranee. Hypotensive effect of the extract of Apium graveolens Linn. วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 4(1), 1977 : 10-13.

Intravenous injection of both dialyzed and non-dialyzed solutions of the aqueous extract of Kinchai (Apium graveolens Linn.) caused abruptly a decrease of the blood pressure in the rabbits. The mean blood pressure and pulse pressure fell 55 and 40 per cent respectively from those of the control. The dialyzed and non-dialyzed solutions produced a significant increase in the force of contraction of the isolated heart of the guinea pigs with no marked changes in the rate of contraction. The diuretic effect of both solutions was demonstrated both in the rat and the rabbit. There was no relationship between the diuretic effect and the increment of doses of this extract. - Authors.

91. LIMPINUNTANA, Chalao; NAKORNCHAI, Suchit; PUMANGURA, Chalerm Sri; NOOKWUN, Chongkol and JAIARJ, Pranee. Hypotensive effect of Loranthus pentandrus L. and its pharmacological action and toxicity. Mahidol University Annual Research Abstract 1978. Bangkok, Mahidol University, 1978, p. 340.

Aqueous extracts of the stems and leaves of Kafak-Mamuang (Loranthus pentandrus, L.) were obtained by boiling their powdered forms with water. Some portions were dialyzed with the cellulose acetate dialyzing bag. Both non-dialyzed and dialyzed aqueous extracts were used in the present study and both are found to possess hypotensive effect in the experimental animals whose mean blood pressure, systolic pressure, diastolic pressure and pulse pressure were decreased significantly from the normal levels. The non-dialyzed

extract was, however more effective in producing hypotension and action on the heart contraction. In addition, the negative chronotropic and inotropic effects on frogs and rabbits were also observed when the non-dialyzed extract was used. The electrolyte solution which contained the same amount of cations as in the non-dialyzed extract was also tested. The comparison of the effects of the electrolyte solution and the aqueous extract on the rabbits heart indicated that the effect obtained from the latter was not due solely to the cations since it also contained certain active ingredients which may have exerted the effect. The respiration in the experimental animals did not greatly alter during the falling of the blood pressure. The extract did not cause diuresis in the rabbits. The acute toxic effect on mice, rats, and dogs or subchronic toxicity on the rats for a period of three months did not appear. - Authors.

92. MANTRANON, Ing-on; TANTIWAT, Phayom; RIEUTRAKUN, Wichai and CHIRAWONG, Wichian. การศึกษาทางพฤกษเคมีของใบแคสมสาร (The study on pharmacognosy of Cassia garrettiana Craib.) บทความตอนผลงานวิจัย 2518-2520 จุฬาลงกรณ์มหาวิทยาลัย (Abstracts 1975-1977 Chulalongkorn University). Bangkok, Chulalongkorn University, 1978, p. 185. (In Thai)

Cassia garrettiana leaves were extracted and Aloemodin were found. The physical and chemical properties were studied here. - R.K.

93. MARACAN, A. The story of drug, with special reference to Siamese medicinal plants. The Journal of the Siam Society, Natural History Supplement 7(2), 1927 : 107-118.

Describe the history of many kinds of medicinal plants and review the medicinal uses of these plants. - R.K.

94. MAUNWONGYATHI, Payow. Pharmacognostic study of Dita bark, Alstonia scholaris R. Br. bark. วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Science) 5(3), 1978 : 69-72.

A pharmacognostic study of Dita bark obtained from four different Thai - drug stores in Bangkok was performed.

Their macroscopic and microscopic characteristics were similar to those of the authentic samples. One sample, however, was found to contain a type of tissues not detected in other samples. This could be due to the age differences among the samples. - Author.

95. MAUNWONGYATHI, Payon; SARALUMP, Promchit and TRISONTHI, Paritat. สารประกอบที่สำคัญในเปลือกต้นพญาสัตบรรณ (The chemical constituents of the bark of Alstonia scholaris R. Br. (Apocynaceae).) วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Science) 5(1), 1978 : 5-10. (In Thai)

The primary investigation was performed on the chemical constituents of the bark of the Alstonia scholaris R. Br., Apocynaceae. Chemical tests and thin layer chromatography suggested that the alcoholic and chloroform extract or percolate contained alkaloids, unsaturated lactones, 2-deoxy sugar, steroidal nucleus, saponin and flavanols. - Authors.

96. MEDICINAL PLANT RESEARCH PROJECT. เมล็ดสุรพัตพิษ (Studies on Sophora tomentosa seed) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 13(4), 1971 : 1-19.

As the result of this research, Sara-phat-phit contains four alkaloids (matrine, methylcytisine, cytisine, and matrine N-oxide). Cytisine only shows distinct pharmacological action which is the same as that of the crude extract of Sara-phat-phit, but other three alkaloids are almost not active. The presence of matrine N-oxide (IV) in S. tomentosa was detected, and this alkaloid should be identical with the unidentified base.

Also, cytisine content in Sara-phat-phit was detected by gas chromatographic method (about 0.4%). - Author.

97. MOKASAMIT, Mongkon. รายงานเบื้องต้นการศึกษามะเกลือเพื่อใช้-
ถ่ายพยาธิลำไส้ (Study feasibility of Diospyros mollis Griff. for being laxative) วารสารของกรมวิทยาศาสตร์การ-
แพทย์ (The Bulletin of the Department of Medical Sciences) 2, 1960 : 153-169. (In Thai)

Study on botanical description, analysis and medicinal uses. - R.K.

98. MOKASAMIT, Mongkon. รายงานการศึกษาเบื้องต้นของลูกเนียง
(Study feasibility of Pithecellobium jiringa Prain.)
วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the De-
partment of Medical Sciences) 3, 1961 : 203-212. (In
Thai)

Study on description, composition, toxicity and
utilization of Pithecellobium jiringa Prain. - R.K.

99. MOKASAMIT, Mongkon; SAWATMONGKON, Kamon and NGAMWAT,
Wantha. การศึกษาเภสัชวิทยาของจันทน์ชะมด (Study on phar-
macology of Mansonia gagei, Drumm. and Aglaia pyramidata
Hance.) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of
the Department of Medical Sciences) 13(1), 1971 : 27-
35. (In Thai)

Study on description, extraction, toxicity and
medicinal uses. - R.K.

100. MOKASAMIT, Mongkon; SAWATMONGKON, Kamon and SATRAWAHA,
Prayut. การศึกษาพิษของสมุนไพรไทย (Study on toxicity of
Thai Medicinal plant) วารสารของกรมวิทยาศาสตร์การแพทย์
(The Bulletin of the Department of Medical Sciences)
13(1), 1971 : 36-66. (In Thai)

Study on acute toxicity test and medicinal uses of
various kinds of medicinal plants. - R.K.

101. MOKHASMIT, Mongkol; NGARMWATHANA, Wantana; SAWASDIMONG-
KOL, Kamol and PERMPHIPHAT, Uraivan. การประเมินฤทธิ์ทาง-
เภสัชวิทยาของสมุนไพรไทย (Pharmacological evaluation of
Thai medicinal plants). จดหมายเหตุทางแพทย์ (Journal of
Medical Association of Thailand) 54(7), 1971 : 490-504.

In the pharmacological screening of 182 Thai medi-
cinal plants, 11 of them showed papaverine and atropine
type actions when diluted at 10^{-3} ; 16 types showed an-
tihistaminic action when diluted 10^{-3} ; 2 of them showed
oxytotic action when diluted at 10^{-2} ; and 67 of them
showed cardiovascular action when were given to dogs
at a dose of 100 mg/kg body weight intravenously. -
Authors.

102. MONDRANONDRA, Ing-on. การศึกษาทางพฤกษเคมีของใบแสมสาร (A phytochemical study of the leaves of *Cassia garrettiana*.) Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, Faculty of Pharmacy, 1976, 59 p.

Aloe-emodin, an anthraquinone genin was isolated from the leaves of *Cassia garrettiana* Craib (Caesalpinaceae) by means of column chromatography. The physical and chemical properties of this genin were studied. - Author.

103. MONGKOLSUK, Stang and BHODIMUANG, Veerapongse. สบู่ไฟ ฤๅษี (Loranthaceae, *Dendrothoe pentandra* Miq.) วารสารสำนักงานคณะกรรมการวิจัยแห่งชาติ (Journal of the National Research Council of Thailand) 6(1,2,3,4), 1974 : 51-58.

A new long-chain ester and glycoside of a flavonoid compound; quercetin, were isolated from the leaves of *Dendrothoe pentandra* Miq. The isolation method comprises the following steps, the fresh leaves were chopped into small pieces and extracted with petroleum ether (b.p. 50-70°C) in a soxhlet apparatus for 48 hours to remove the waxy matter. The residue was then extracted with methanol for three days. The solvent was removed to small volume under reduced pressure. Purification of long-chain ester from waxy matter by chromatography on alumina has been found to be an effective method. The infra-red spectrum of the long-chain ester shows first peak at 1721 cm^{-1} for carbonyl ester and at 722 cm^{-1} for polymethylene chain. There was no evidence of unsaturation. The long-chain ester ($\text{C}_{60}\text{H}_{120}\text{O}_2$, m.p. 89-90°C) was hydrolysed in alcoholic potassium hydroxide to an alcohol ($\text{C}_{34}\text{H}_{70}\text{O}$, m.p. 88-89°C) and an acid ($\text{C}_{26}\text{H}_{52}\text{O}_2$,) m.p. 86-87°C. The methanol fraction furnished a yellow crystalline solid after concentration. It was identified as a glycoside. Hydrolysis of the glycoside with methanolic hydrochloric acid furnished the aglycone which was proved to be flavonoid compound named quercetin m.p. 314-315°C. - Authors.

104. MUANWONGYATHI, Payow and KULKANJANATORN, Pitsamai. หัวข้าวเขนเหนือ (*Dioscorea piscatorum* P. and *D. rhizome-Hua Khao-Yen-Nua*) วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 4(2), April-June, 1977 : 49-54.

Describe the description, histology, powdered drug, identification and ancient usage. - R.K.

105. MUELLER-OERLINGHAUSEN, B.; NGAMWATHANA, Wantana and KANCHANAPEE, Panida. Investigation into Thai medicinal plants said to cure diabetes. จดหมายเหตุแพทย (Journal of the Medical Association of Thailand). 54, 1971 : 105-112.

12 of 20 crude drugs used in South East Asia as a remedy for diabetes were checked for blood sugar lowering activity in normal healthy rabbits and partly in mice and rats. In no case could any remarkable action be established. Because of their wide reputation, Tectona grandis and Lagerstroemia speciosa were also examined, the results being completely negative. Therefore, if some of these drugs really can be of benefit to the diabetic patient, the action can not be of an insulin-like nature. - Authors.

106. MUNSAKUL, Supatra and SAWASDIMONGKOL, Kamol. Extraction and fractionation of the active principle(s) of Loranthus pentandrus L. (Kafak-mamuang). Bangkok, ASRCT, 1972, 6 p. (Rep. no.3 on Res. Proj. 17/4),

Crude extracts of Loranthus pentandrus L. leaves from Chon Buri were prepared and also dialyzed. The fractionation of dialyzate with silica gel (kieselgel 0.2-0.5 mm, E. Merck AG., Darmstadt, Germany) was attempted. Five different fractions were prepared and were tested for hypotensive activity on dogs. Two fractions showed significant effect on blood pressure. - Authors.

107. NA SONGKHLA, Busaban. สมุนไพรไทย ตอนที่ ๑ (Thai medicinal plants Part I.) Bangkok, The Royal Forest Department, 1976, 90 p. (In Thai)

Describe the general morphology, ecology and medicinal uses of 51 medicinal plants. - K.P.

108. NAPARATT, Busabong. Investigation of the cardiovascular respiratory and gastro-intestinal effects of Leucaena glauca (kathin). Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1973, 123 p.

Kathin extract showed a prominent effect on the cardiovascular system in dogs. It produced hypotension, bradycardia and the respiratory stimulation when administered intravenously. Effects of kathin extract on isolated heart were examined in isolated frog and turtle heart preparations. It decreased the rate of contraction and caused a biphasic response in the force of contraction. In turtle heart preparations, kathin extract decreased the excitability and the contractility in atrial strips but increased those in ventricular strips.

The effect of kathin extract on gastro-intestinal system was studied in both intact and isolated intestines in rats. An increase in the tonus and the force of contraction were observed in isolated rat ileum after the administration of kathin extract. - K.N.

109. NGEARNDEE, Passara. โภจัญญ์ (Kot-Hua-Bua) วรรณสารของกรมวิทยาศาสตร์การแพทย์. (The Bulletin of the Department of Medical Sciences) 18(4), 1976 : 171-177. (In Thai with Engl. summ.)

The morphological and histological structures, are illustrated by the microscopical pictures.

The characteristic powder of Ligusticum wallichii are the abundance of simple and compound 2 to 3 of starch grains, the individual grains being spheroidal, oblong, sub-triangular or polygonal, often a central cleft, from 10 μ to 20 μ in diameter or length, the fragments of reticulate, anular vessels and few sealariform vessels, from 10 μ -20 μ . in diameter : rarely fiber.

The characteristic power of Cnidium officinale are the pieces of gelatinized starch, the pieces of parenchyma containing them; the fragments of reticulate, anular vessels, from 10 μ to 25 μ in diameter : fiber rarely. - Author.

110. NGEARNDEE, Passara and JIRASATHAPORN, Soonthorn. The pharmacognostical studies on "San-phra-hom" (Eupatorium stoechadosmum Hance, Family Compositae). วรรณสารของกรมวิทยาศาสตร์การแพทย์. (The Bulletin of the Department of Medical Sciences) 21(1), 1979 : 27-39.

The characteristic powder of Eupatorium stoechas-
dosmum Hance is the greenish brown powder, fragrant
odour. We could find the pieces of leaves associated
with epidermal cells and stomata, the portions of uni-
seriate trichome; the bundles of fiber, diameter 20-
40 microns individually, the fragments of pitted, reti-
culate, annular, scalariform and spiral vessels, dia-
meter 10-40 microns; starch grain none. - Authors.

111. NGEARNDEE, Passara and JIRASATHAPORN, Soonthorn.
การศึกษาลักษณะทางเภสัชวิทยาของผลสมอ ๓ ชนิด (The Pharmacog-
nostical studies on the 3 kinds of Myrobalans' Fruit.
วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the
Department of Medical Sciences) 20(3), 1978 : 157-180.
(In Thai with Engl. summ.)

The characteristic powder of Terminalia chebula,
Retz. are the very lignified porous parenchyma and
the rosette aggregate crystals of calcium oxalate dia-
meter 8-20 microns. The fiber in single or group dia-
meter about 20 microns. The fragment of pitted, reti-
culate or annular vessel, diameter 10-25 microns.

The characteristic powder of Terminalia citrina,
Roxb. are the lignified porous of calcium oxalate dia-
meter 20-50 microns. The fragment of pitted, reticu-
late and annular vessel, diameter 10-25 microns. The
fiber in single or group diameter 10-20 microns.

The characteristic powder of Terminalia bellerica,
Roxb. are the abundance of the slightly lignified porous
parenchyma. The minute unicellular tomentums, faintly
yellowish-brown, pointed end; the base width are 15-
20 microns, the length 65-120 microns. The groups of
sclereids about 37 microns in width and 225 microns in
length individually. The groups of stone cells about
75 microns in width and 190 microns in length indivi-
dually. - Authors.

112. NGOENDI, Phatsara. การศึกษาทางเภสัชวิทยาของจันทร์ชะมด
(Study in pharmacology of Chan-cha-mot-Mansonia gagei)
วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the
Department of Medical Sciences) 14(3), 1972 : 75-82.
(In Thai)

Describe the habitat, description, macroscopical
character and therapeutic uses. - R.K.

113. NILVISES, Nantaporn; CHENPANICH, Krungkrai and TUCHINDA, Prasertsuk. Some pharmacological effects of the extract of Zygophyllaceae Tribulus terrestris. Mahidol University Annual Research Abstract 1979. Bangkok, Mahidol University, 1979, p. 73.

The male rats (body weight 200-250 gms.) were used for the study of some pharmacological effects of Zygophyllaceae Tribulus terrestris extract (10% infusion), anesthetized with ethyl alcohol and prepared for recording the urine flow (drops/min.) via suprapubic cystostomy and recording the arterial blood pressure by common carotid artery cannulation.

15 minutes after intravenous injection 0.2 ml. of 10% infusion of the extract produced gradually rise in the arterial blood pressure and the urine flow. When the extract was precipitated with 3% solution of alcohol and filtered. The filtrate was slowly infused via Ext. Jugular vein (0.25 ml./min. for 5 min.). They produced clearly the increasing of arterial blood pressure and urine flow (drops/min.) These effects persisted for 60 mins. The diuretic result was comparable with intravenous injection 0.2 ml. of Furosemide (2ml. = 10mg.)

The study suggests that the extract of Zygophyllaceae Tribulus terrestris produced the diuretic effect at the peripheral site. - Authors.

114. NIMKULRAT, Liwan, การศึกษาฤทธิ์ของสารที่สกัดได้จากใบราตรีทองระบบหัวใจ เส้นเลือด และการหายใจ (Study of the cardiovascular and respiratory effects of alcoholic extract from Cestrum nocturnum leaves.) Master of Science Thesis. Bangkok, Chulalongkorn University, Faculty of Pharmacy, 1979, 75 p.

The saponin fraction of Cestrum nocturnum Leaves produced acute toxic signs in mice by intravenous injection. These signs included increasing in both depth and rate of respiration at low doses. Irregular respiration, apnea, convulsion and death were found at higher doses. The LD₅₀ of intravenous injection was 50.0 (39.4-63.5) mg./Kg. and that of intraperitoneal injection was 200.0 (165.3-242.0) mg./Kg. The increase in respiration was also found in anesthetized cats.

This saponin depressed the amplitude of contraction more than that of the rate of isolated guinea pig and turtle hearts. However an initial increase in amplitude of contraction and blood pressure observed from isolated guinea pig hearts and anesthetized cats respectively at low doses, these effect was not observed at high doses. The reduction of amplitude of contraction found in guinea pig hearts supported the conclusion that hypotensive effect in cats was partly due to direct depressant effect upon ventricle. Again, the hypotension is likely due to direct vasodilatation and partly by indirect effect of some vasodilators which were released by this saponin.

Neither antihistamine (Diphenhydramine HCl,) propranolol nor atropine could abolish the depressant effect upon the isolated hearts and also the hypotensive effect in cats. Propranolol was likely to potentiate the depressant effect in anesthetized cats. However adrenalin could restore this effect but degree of recovery was depended on the depressant effect of saponin. This saponin fraction caused cardiac arrhythmias in both isolated turtle hearts and anesthetized cats but it was not observed in guinea pigs. In additive experiment found that it reduced the intestinal motility in mice.

The results from this experiment could be concluded that the saponin fraction of Cestrum nocturnum leaves caused the cardiovascular and respiratory toxicity, which conformed with those toxics observed from saponin of other plants. - Authors.

115. PANTHONG, Amphai. Pharmacological study of the action of ginger (Zingiber officinale Roscoe) on the gastrointestinal system. Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1974, 106 p.

Ginger extract produces stimulating as well as inhibitory effects on the contractility of the isolated rat ileum. In low concentrations ginger extract causes an increase in the contractile force, but the opposite is obtained when high concentrations of extract are used. The tonus of the isolated rat ileum appears to be lowered by high concentrations of ginger extract; but no change in tonus is detected when low concentrations are applied.

Ginger extract causes a marked increase in the contractile force of isolated rat fundus strips. Very high concentrations produce a stimulating effect but this gradually decreases until no change in the contractile force is observed at the maximum dose (3 mg/ml).

All doses of ginger extract (0.050-0.200 g/Kg body weight) increase the contraction of dog's intestine in situ. There is no evidence of direct histamine-like action as the effects are not abolished by the application of an antihistamine. The potassium ion contained in the extract does not influence the intestinal motility. Ginger extract acts by exerting a 5-HT-like action either by releasing 5-HT or by itself containing 5-HT. - K.N.

116. PANTHONG, Amphai and TEJASEN, Panee. Study of the effects and the mechanism of action of ginger (Zingiber officinale, Roscoe) on motility of the intact intestine in dogs. เชียงใหม่เวชสาร (Chiang Mai Medical Bulletin) 14(3), 1975 : 221-232.

All doses of Ginger Extract (0.050-0.200 Gm/Kg body weight) increase the contraction of dog's intestine in situ. Experiments using atropine and alpha- and beta-adrenergic blocking agents (phentolamine and propranolol) rule out that ginger extract exerts a cholinergic or adrenergic effect. There is no evidence of a direct histamine-like action as the effect are not abolished by the application of an antihistamine (diphenhydramine). It is also proved that the potassium ion contained in the extract does not influence the intestinal motility.

It is reasonable to assume that ginger extract acts by exerting a 5-HT-like action either by releasing 5-HT or by itself containing 5-HT. Another possibility is a direct effect on the smooth muscle fiber. Angiotensin-like and prostaglandin like action cannot be ruled out completely without further evidence. - Authors.

117. PATRAKIJVANICH, Paiboon. The chemical constituents of the bark of Ebenaceae Diospyros siamensis. Master of Science (Organic Chemistry) Thesis. Bangkok, Mahidol University, 1972, 50 p.

Two pentacyclic triterpenes, identified as lup-20(29)-en-28-oic acid-3 β -ol (betulinic acid) and lup-20(29)-ene-3 β -28-diol (betulin), were isolated from the bark of Disopyros siamensis (EBENACEAE). Another white solid which might be a mixture of long-chain aliphatic esters was also isolated but could not be studied in detail. - Author.

118. PAVARO, Chitkavee and REUTRAKUL, Vichai. A study of new "flavone" in Puak hart. Mahidol University Annual Research Abstracts 1977. Bangkok, Mahidol University, 1977, p. 324. Also published in วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Varasarn Paesachsarthara Mahidol University) 3(3), July-Sept. 1976 : 161-164 (In Thai with Engl. summ.)

A new flavone, isolated from the methylation of "Puak Hart" an extractive obtained from the heartwood of Artocarpus lakoocha F. Moraceae, has been shown by spectroscopic studies to be 5-Hydroxy-7, 2',4'-trimethoxy flavone (I). A full investigation is in progress in order to establish the structure of the parent flavanoid compound. - Authors.

119. PECHARAPLY, Daroon. สมุนไพรจีนในประเทศไทย ตอนที่ ๒. (The Chinese drugs in Thailand (II).) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 19(1), 1977 : 9-27. (In Thai with Engl. summ.)

The study of the Chinese drugs was reported in this journal previously. In this paper eight commercial seed samples of the Chinese drugs collected from the markets of Bangkok were studied on their origins and characters. Three feature can be used for identifying the Chinese drugs. - Author.

120. PEETIYA, Pimol. Some chemical constituents of heartwood extractives of MORACEAE Cudrania javanensis Frec. and a preliminary investigation of the shell of the seeds of "FLACOURTIACEAE Hydnocarpus kurzii". Master of Science (Organic Chemistry) Thesis. Bangkok, Mahidol University, 1969, 88 p.

From the ethyl alcohol extract of Hydnocarpus kurzii a new type of flavone was isolated. Its structure was proposed from the chemical and spectroscopic evidence of both of the flavone and its degradative products.

From the petroleum ether extract of Cudrania javanensis one fatty acid m.p. 78-9°C and one steroid which was shown to be β -Sitosterol, and from the diethyl ether extract one flavonol were isolated. The flavonol was proved to be 3:5:7:2':4' penta hydroxyflavone (morin). In the light of this investigation and the report of other workers it may be concluded that morin is distributed in nearly every genera of the wood of MORACEAE. - Author.

121. PENGSRITONG, Komol; JOHANSSON, Lars and WASUWAT, Sathorn. Review of literature and previous pharmacological work on candidate species selected for initial screening. Bangkok, ASRCT, 1966, 16 p. (Rep. no.1 on Res. Proj. 17/1)

Information is given on previous pharmacological work on 14 selected candidate species together with selected references. The candidate species are; kafak-mamuang (Loranthus pentandrus L.), maklua (Diospyros mollis Griff.), mahat (Artocarpus lakoocha Roxb.), inthanin (Lagerstroemia flos-reginae Retz.), kwao (Pueraria mirifica Airyshaw & Suvatabhand), phakbungtha-le (Ipomoea pes-caprae (L.) Roth.), saniat (Adhatoda vasica Nees), sanun (Salix tetrasperma Roxb.), ratchadat (Brucea amarissima Desr.), krungkhamao (Cissampelos pareira L.), kranthong-lai (Celastrus paniculata Willd.), salet phang-phon (Barleria lupulina Lindl.), makdipnamkhang (Oldenlandia sp.), and phaya mulex (Strychnos krabiensis A.W. Hill). - S.K.

122. PHAKKASEM, Wichit. Certain chemical constituents of Stemona roots. (สารเคมีบางอย่าง ที่พบในรากของต้นยาสูบ) Master of Science Thesis. Bangkok, Chulalongkorn University, 1969, 39 p. (In Thai with Engl. summ.)

Ground dried Stemona collinsae roots were extracted by ethyl alcohol in a Soxhlet apparatus and filtered. Evaporation of filtrate to dryness obtained a brownish

semi-solid product. The product was further treated with 2% hydrochloric acid. Almost a half of material was dissolved into a solution filtered off an insoluble material and which yield a light brown solid. This solid was dissolved in benzene and chromatographed on a 3.5 cm. by 100 cm. column of a standard neutral alumina. Many portions of material were collected from the chromatographed process; and further purified by several recrystallizations. Four compounds, m.p. 203-4°, 229-30° (d), 215-6°(d) 244-5° were obtained. One of them, which was purest, gave a sharp m.p. at 203-4° and resulted a reasonable yield, was chosen to study its chemical properties and structure. From its chemical properties, IR. and UV. spectra the solid m.p. 203-4° was found to be 3-hydroxyflavanone. - Author.

123. PHAN-URAI, Prakong. รายงานการศึกษาชีววิเคราะห์ของรากพอนตาย-อัยาก (Report on the studies of biological activity of Stemona root : Stemona curtesii.) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Science) 19(3), 1977 : 145-155. (In Thai with Engl. summ.)

Toxicity of crude water extract of Stemona root Stemona curtesii to Aedes aegypti and Culex p. fatigans Larvea have been shown in the report. The LC-50 and LC-95 values for each species are respectively Ae. aegypti 80,250; C. fatigans 70,126 ppm. House fly larvae : Musca domestica has also shown to suscept 100% mortality to the water extraction from Stemona root at the concentration 0.005 g. of dry water extract per 1 g of fly larval media. Non-Tai-Yak (Clitoria hanceana, Hemsl) has been found with no larvicidal effects on mosquito and house fly larvae in the studies. Purified substances from Stemona collinsae has also been evaluated for larvicidal properties on mosquito larvae. Only one compound named Stemonal has larvicidal property. The LC-50 and LC-95 value for Ae. aegypti are 2.5 and 7.0 ppm. - Author.

124. PHAN-URAI, Prakong; DECHATIWONGSE, Thaweephol and CHARUNUT, Suwanna. การศึกษาสารสกัดจากพลูไซทากนยงกัต (Studies of the extract from Plai (Zingiber cassumunar Roxb.) as a mosquito-repellent.) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 20(2), 1978 : 81-89. (In Thai with Engl. summ.)

Oil fraction from plai has been evaluated as a mosquito-repellent against Aedes aegypti and Culex pipiens. At 30% concentration in oilment, no inflammation has been observed and no adverse symptoms on human skin. - Authors, modified.

125. PHANWISAWAT, Ruangsak; KUNANEK, Amphon and TAGUCHI, Heihachiro. ขมิ้นเครือ (*Combretum* spp. or *Anamirta cocculus*) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 14(3-4), 1972 : 59-73. (In Thai)

Study on botanical description, isolation of berberline and other alkaloids and medicinal uses. - R.K.

126. PHETPLAI, Darun สมุนไพรจีนในประเทศไทย (Chinese medicinal plant in Thailand) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 16(3), 1974 : 109-124. (In Thai)

Study on description and medicinal uses of many kinds of Chinese medicinal plants : *Cassia tora* Linn. (เซ้าวกูเม็ง-ชุมเห็ดไทย), *Raphanus sativus* Linn. (ไคทกจี-ผักกาดขาว), *Trigonella foenum-gracum* Linn. (ไฮ่วัดปลา-ลูกซัด), *Plantago asiatica* Linn. (เซยไคยจี-ผักกาดน้ำ), *Prunus persica* (L.) batsch. (พอยน-ช่อ), *Canavalia gladiata* (Jacquin) De Candolle (ตอเตยง-ถั่วพราง) and *Ginkgo biloba* Linn. (แปะก๊วย). - R.K.

127. PHOMUANG, Wiraphong. สมุนไพรมะค่าไทย (*Azelia xylocarpa*) Research Report. Bangkok, Mahidol University, 1969, 7 p. (In Thai)

Report on extraction, glycosides and medicinal uses. - R.K.

128. PHONGBUNROD, Sangiam. ชะอม (*Acacia insuavis*) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 185-186. (In Thai)

Report on description and medicinal uses. - R.K.

129. PHONGBUNROD, Sangiam. เหยือกปลาหมอ (*Acanthus hicifolius*) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 157-158. (In Thai)

Report on description and medicinal uses. - R.K.

130. PHONGBUNROD, Sangiam. มะตูม (*Aegle marmelos*) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 415-417. (In Thai)

Report on description and medicinal uses. - R.K.

131. PHONGBUNROD, Sangiam. สะเดาไทย (Albizzia myriophyll)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok,
Kasem Banakit Ltd., 1965, p. 187. (In Thai)

Report on description and medicinal uses. - R.K.

132. PHONGBUNROD, Sangiam. กระเทียม (Allium sativum) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 25-29. (In Thai)

Report on description, extraction and medicinal
uses. - R.K.

133. PHONGBUNROD, Sangiam. ขมิ้น (Alpinia siamensis) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 94-95. (In Thai)

Report on description and medicinal uses. - R.K.

134. PHONGBUNROD, Sangiam. กระวาน (Amomum cardamomum) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 42-44. (In Thai)

Report on description and medicinal uses. - R.K.

135. PHONGBUNROD, Sangiam. มะม่วงหิมพานต์ (Anacardium occi-
dentale) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai)
Bangkok, Kasem Banakit Ltd., 1965, p. 425-426. (In
Thai)

Report on description and medicinal uses. - R.K.

136. PHONGBUNROD, Sangiam. ตะไคร้กอ (Andropogon citratus)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 231-232. (In Thai)

Report on description and medicinal uses. - R.K.

137. PHONGBUNROD, Sangiam. น้อยหน่า (Anona squamosa) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 305. (In Thai)

Report on description and medicinal uses. - R.K.

138. PHONGBUNROD, Sangiam. ไม้ (Bambusa spp.) In : ไม้เทศ-
เมืองไทย (Mai Thet Muang Thai), Bangkok, Kasem Banakit
Ltd., 1965, p. 337. (In Thai)

Report on description and medicinal uses. - R.K.

139. PHONGBUNROD, Sangiam. มะพร้าว (Bouea burmanica) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 418. (In Thai)

Report on description and medicinal uses. - R.K.

140. PHONGBUNROD, Sangiam. ราชคฤ์ (Brucea amarissima) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 469-470. (In Thai)

Report on description and medicinal uses. - R.K.

141. PHONGBUNROD, Sangiam. กะดังงาไทย (Canangium odoratum)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 6-7. (In Thai)

Report on description and medicinal uses. - R.K.

142. PHONGBUNROD, Sangiam. มะละกอ (Carica papaya) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 429-430. (In Thai)

Report on description and medicinal uses. - R.K.

143. PHONGBUNROD, Sangiam. ราชพฤษ (Cassia nodosa) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 470. (In Thai)

Report on description and medicinal uses. - R.K.

144. PHONGBUNROD, Sangiam. ขี้เหล็ก (Cassia siamea) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 100-101. (In Thai)

Report on description and medicinal uses. - R.K.

145. PHONGBUNROD, Sangiam. ชมเห็ดไทย (Cassia tora) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 195. (In Thai)

Report on description and medicinal uses. - R.K.

146. PHONGBUNROD, Sangiam. อบเชยต้น (Cinnamomum tammala)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 572-573. (In Thai)

Report on description and medicinal uses. - R.K.

147. PHONGBUNROD, Sangiam. มะนาว (Citrus aurantifolia)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok,
Kasem Banakit Ltd., 1965, p. 417-418. (In Thai)
Report on description and medicinal uses. - R.K.
148. PHONGBUNROD, Sangiam. มะกรูด (Citrus hystrix) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai). Bangkok, Kasem
Banakit Ltd., 1965, p. 397. (In Thai)
Report on description and medicinal uses. - R.K.
149. PHONGBUNROD, Sangiam. กานพลู (Clove-Eugenia aromatica)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 62-63. (In Thai)
Report on description and medicinal uses. - R.K.
150. PHONGBUNROD, Sangiam. ขมิ้นชัน (Curcuma longa) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 92-93. (In Thai)
Report on description and medicinal uses. - R.K.
151. PHONGBUNROD, Sangiam. ตะไคร้หอม (Cymbopogon nardus)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 233-234. (In Thai)
Report on description and medicinal uses. - R.K.
152. PHONGBUNROD, Sangiam. ถลอย (Dioscorea hispida) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 87-88. (In Thai)
Report on description and medicinal uses. - R.K.
153. PHONGBUNROD, Sangiam. มะเกลือ (Diospyros mollis) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 398-399. (In Thai)
Report on description and medicinal uses. - R.K.
154. PHONGBUNROD, Sangiam. พไร้ขน (Durio malaccensis) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 271-272. (In Thai)
Report on description and medicinal uses. - R.K.

155. PHONGBUNROD, Sangiam. จามจุรีหรือกานพลู (Enterolobium soman) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 176-177. (In Thai)
- Report on description and medicinal uses. - R.K.
156. PHONGBUNROD, Sangiam. ทองหลาง (Erythrina fusca) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 286-287. (In Thai)
- Report on description and medicinal uses. - R.K.
157. PHONGBUNROD, Sangiam. มังคุด (Garcinia mangostana) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 443-444. (In Thai)
- Report on description and medicinal uses. - R.K.
158. PHONGBUNROD, Sangiam. ฝรั่ง (Zingiber officinale) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 113-114. (In Thai)
- Report on description and medicinal uses. - R.K.
159. PHONGBUNROD, Sangiam. หญ้าคา (Imperata cylindrica) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 201-202. (In Thai)
- Report on description and medicinal uses. - R.K.
160. PHONGBUNROD, Sangiam. มะลิ (Jasminum sambu) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 430-431. (In Thai)
- Report on description and medicinal uses. - R.K.
161. PHONGBUNROD, Sangiam. เปราะ (Kaempferia galanga) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 329-331. (In Thai)
- Report on description and medicinal uses. - R.K.
162. PHONGBUNROD, Sangiam. กระชาย (Kaempferia pandurata) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 5. (In Thai)
- Report on description and medicinal uses. - R.K.

163. PHONGBUNROD, Sangiam. กระดังง์ไทย (Leucaena glauca) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 13-14. (In Thai)
- Report on description and medicinal uses. - R.K.
164. PHONGBUNROD, Sangiam. คำลิง (Melothreia heterophylla)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok,
Kasem Banakit Ltd., 1965, p. 245-246. (In Thai)
- Report on description and medicinal uses. - R.K.
165. PHONGBUNROD, Sangiam. กระพอน (Mitragyna speciosa)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok,
Kasem Banakit Ltd., 1965, p. 22-24. (In Thai)
- Report on description and medicinal uses. - R.K.
166. PHONGBUNROD, Sangiam. ลำไย (Nephelium longana) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 477-478. (In Thai)
- Report on description and medicinal uses. - R.K.
167. PHONGBUNROD, Sangiam. โหระพา (Ocimum canum) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai). Bangkok, Kasem
Banakit Ltd., 1965, p.553. (In Thai)
- Report on description and medicinal uses. - R.K.
168. PHONGBUNROD, Sangiam. สะเพร่า (Ocimum sanctum) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p.37. (In Thai)
- Report on description and medicinal uses. - R.K.
169. PHONGBUNROD, Sangiam. เตยหอม (Pandanus odoratus) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p.257. (In Thai)
- Report on description and medicinal uses. - R.K.
170. PHONGBUNROD, Sangiam. ฝิ่น (Papaver somniferum) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 356-357. (In Thai)
- Report on description and medicinal uses. - R.K.

171. PHONGBUNROD, Sangiam. มะยม (Phyllanthus distichus)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok,
Kasem Banakit Ltd., 1965, p. 426-427. (In Thai)
- Report on description and medicinal uses. - R.K.
172. PHONGBUNROD, Sangiam. พลู่ (Piper betle) In : ไม้เทศ-
เมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit
Ltd., 1965, p. 369-370. (In Thai)
- Report on description and medicinal uses. - R.K.
173. PHONGBUNROD, Sangiam. ถั่วลิ้นเต่า (Pisum sativum) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p.270. (In Thai)
- Report on description and medicinal uses. - R.K.
174. PHONGBUNROD, Sangiam. ฝรั่ง (Psidium guajava) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai). Bangkok, Kasem
Banakit Ltd., 1965, p.354. (In Thai)
- Report on description and medicinal uses. - R.K.
175. PHONGBUNROD, Sangiam. ถั่วพ (Psophocarpus tetragono-
lobus) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bang-
kok, Kasem Banakit Ltd., 1965, p.268. (In Thai)
- Report on description and medicinal uses. - R.K.
176. PHONGBUNROD, Sangiam. พับพัน (Punica granatum) In :
ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem
Banakit Ltd., 1965, p. 289-290. (In Thai)
- Report on description and medicinal uses. - R.K.
177. PHONGBUNROD, Sangiam. ฝรั่ง (Rauwolfia serpentina)
In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok,
Kasem Banakit Ltd., 1965, p. 461-462. (In Thai)
- Report on description and medicinal uses. - R.K.
178. PHONGBUNROD, Sangiam. พุงพัน (Rhinacanthus nasutus
or R. communis) In : ไม้เทศเมืองไทย (Mai Thet Muang
Thai) Bangkok, Kasem Banakit Ltd., 1965, p.284. (In
Thai)
- Report on description and medicinal uses. R.K.

179. PHONGBUNROD, Sangiam. กระเจี๊ยบ (Roselle-Hibiscus sabdariffa) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 2-3. (In Thai)
Report on description and medicinal uses. - R.K.
180. PHONGBUNROD, Sangiam. แคน (Sesbania grandiflora) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 126-127. (In Thai)
Report on description and medicinal uses. - R.K.
181. PHONGBUNROD, Sangiam. มะม่วง (Solanum trilobatum) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 432-433. (In Thai)
Report on description and medicinal uses. - R.K.
182. PHONGBUNROD, Sangiam. ขอบ (Streblus asper) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 119-120. (In Thai)
Report on description and medicinal uses. - R.K.
183. PHONGBUNROD, Sangiam. มรเพ็ด (Tinospora crispa and T. rumphii) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 306-307. (In Thai)
Report on description and medicinal uses. - R.K.
184. PHONGBUNROD, Sangiam. ไหล (Zingiber cassumunar) In : ไม้เทศเมืองไทย (Mai Thet Muang Thai) Bangkok, Kasem Banakit Ltd., 1965, p. 373-374. (In Thai)
Report on description and medicinal uses. - R.K.
185. PHRAYA PHATPHONGSA-WISUTHATHIBODI. กระวาน (cardamon) นิตยสาร เกษตร อายurved (Nitayasan Phesat Aryurawet) ฉบับปฐมฤกษ์ 1964:30. (In Thai)
Report on history, description and essential oil. - R.K.
186. PHRAYA-PHATPHONGSA-WISUTHATHIBODI. กระวาน (cardamon) นิตยสาร เกษตร อายurved (Nitayasan Phesat Aryurawet) 1(2), 1965:1. (In Thai)
Report on medicinal uses of cardamon. - R.K.

187. PHRAYA PHATPHONGSA-WISUTHATHIBODI. กานพลู (cloves)
นิตยสาร เกษตร อายุรวาท (Nitayasan Phesat Aryurawet) 1(2),
1965:1. (In Thai)

Report on description, essential oil and medicinal uses of cloves. - R.K.

188. PHRAYA PHATPHONGSA-WISUTHATHIBODI. ลูกจันทร์-คอกจันทร์
(Nutmeg) นิตยสาร เกษตร อายุรวาท (Nitayasan Phesat Aryurawet)
ฉบับปฐมฤกษ์ 1964:28-29. (In Thai)

Report on history, description, essential oil and medicinal uses. - R.K.

189. PHUPHATANAPHONG, Lina. Thai medicinal plants. Part 2.
Bangkok, The Royal Forest Department, 1979, 117p.
(In Thai)

The description of botanical identity, habitat, morphology and medicinal properties of Thai medicinal plant of the family Apocynaceae and Araceae are described. - K.P.

190. PISETPAKASIT, Raveewan. การศึกษาทางเภสัชวิทยาของสมุนไพร
กวาวเครือ (A pharmacognostical study of Pueraria mirifica.)
Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University,
Faculty of Pharmacy, 1975, 70p.

Guao Krua is one of the indigenous drugs, renowned for its rejuvenating property and mammary glands expansion effect, due to the presence of "Miroestrol", a female sex hormone. Guao Krua has been identified as Pueraria mirifica Airy Shaw et Suvatabandhu (Papilionaceae). The pharmacognostical study was performed, in order to aid the collectors, consumers, as well as the analysts to recognise the real plant.

A detailed study has been carried out on the morphology, histology of the tuberous root and leaf, and constant numbers (palisade ratio, stomatal index, stomatal number, vein-islet number, and veinlet termination number) of the leaves to provide characteristics for the traditional identification. The chromatographic patterns of chemical constituents, of the tuberous root and the leaves were also established in order to serve as the Standard and as an additional Pharmacognostical Identification of the drug. - Author.

191. PLENGVIDHYA, Prachote. A study of diagnostic constants of leaves of some members in genus Cassia. Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1957, 52p.

A critical study of Vein-islet Number, Stomatal Number, Stomatal Index, Palisade Ratio, and Veinlet Termination Number was undertaken in order to determine the reliability of these numbers as diagnostic aids in the identification of leaves of some members of the genus Cassia in Thailand. By statistical method it was proved that there were highly significant differences among the various species of the genus Cassia studied. For each determination, 30 replications were used. - K.N.

192. PLENGWITTHAYA, Prachot. สมุนไพร (Medicinal plant.) วารสารวิทยาศาสตร์ (Science) 25, 1971 : 42-46. (In Thai)

Describe the history and evolution of pharmacognosy. - R.K.

193. PLENGWITTHAYA, Prachot. สมุนไพร (Medicinal plant.) วารสารวิทยาศาสตร์ (Science) 25, 1971 : 80-88. (In Thai)

Consist of the list of medicinal plants : local name and scientific name. - R.K.

194. PODIMUANG, Verapong. The medicinal plant. Balanophora polyandra. Proceedings of the 1971 Bangkok Symposium on Science Research. Bangkok, The National Research Council of Thailand and the Science Society of Thailand, 1971, pp. 106.

Balanophora polyandra Grift. (in Thai, Hora-Teen-mar) was claimed by the old style Thai doctors as antiasinatic. The plant material was successively extracted with petroleum ether, ether and methanol. From petroleum ether and ether fraction beta-amyrin acetate was isolated in 0.3% yield and identified. From methanol fraction a glucoside of m.p. 186°C was obtained in a high yield (0.72%). Physical properties of the compound and the acetate indicated that the compound might be coniferin and the identity was confirmed by the comparison with the authentic sample. The use of the decoction of the herb as antiasmatic in Thailand has now been supported by the presence of coniferin in the plant. - Author.

195. PODIMUANG, Verapong; MONGKOLSUK, Stang; KUNITOSHI, Yoshihira and SHINSAKU, Natori. Constituents of three Thai medicinal plants : Ardisia polycephala (Myrsinaceae), Rhabdia lycioides (Boraginaceae), and Balanophora polyan-dra (Balanophoraceae). Chem. Pharm. Bull. (Tokyo) 19(1), 1971 : 207-208.

A. polycephala root yielded an orange pigment identified with rapanone. R. lycioides contained a mixture of triterpenoids from which bauerenol acetate was isolated. Coniferin and beta-amyrin acetate were obtained from the whole plant of B. polyandra. - Biol. Abstr. 52, 1971.

196. POONPATANA, Sukondha; KASEMSUWAN, Boonching, and TRAKULBOON, Benja P. การตรวจหาสารสำคัญในพืช "พระจนทรครึ่งซีก" (Investigation of the chemical constituents of Lobelia chinensis, Lour, Lobeliaceae) วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 5(2), 1978 : 41-46. (In Thai with Engl. summ.)

Lobelia chinensis Lour Family Lobeliaceae whole plant has been widely used in the form of fresh pressed juice or decoction. The analysis of the fresh whole plant shows that it is composed of 87.8% water, 2.72 mg% alkaloid, and polysaccharide which, after hydrolysis, yields glucose and fructose. The alkaloid present in this plant has been confirmed as not being lobeline which is the alkaloid usually found in plants of this family. - Authors.

197. POONPATANA, Sukondha; WISONDILOK, Pachara and LELAPITYAMIT, Fuanglada. ปริมาณโรโตนินในกล้วยไทย (Serotonin content in Thai banana) วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 4(1), 1977, 14-19. (In Thai with Engl. summ.)

Banana is abundant in Thailand. There are at least 26 varieties which belong to the same family----Musa sapientum, L.

Serotonin content of Thai bananas has been determined and found to be present in different concentration in each variety. Among the three popular varieties, Kluai Kai contains 47 microgram/gram, Kluai Hom 2.8 microgram/gram, and Kluai Nam-wa 0.1 microgram/gram of

serotonin. The serotonin content seems to increase proportionally with the degree of ripening, until reaching the maximum, then it will decrease when the peel becomes blackening. - Authors.

198. POSITONG, Pollasanha. Certain chemical constituents of Murraya paniculata leaves. (สารเคมีบางอย่างไม่ใช่แก้ว) Master of Science Thesis. Bangkok, Chulalongkorn University, 1973, 51 p. (In Thai with Engl. summ.)

Dried, ground leaves of Murraya paniculata (Linn.) collected from Chulalongkorn University were extracted with chloroform. The solution was filtered and then evaporated to dryness on water bath. The residue was a dark green gum. The gum was dissolved first in petroleum ether and the remaining substance was further dissolved in ether and ethyl acetate.

The ether fraction was washed and removed to dry. The dark-green sticky substance was separated by column chromatography. After several recrystallizations in petroleum ether a white fluffy amorphous substance, m.p. 85-86°C, was obtained.

The ethyl acetate fraction was separated by thin-layer chromatography. Two kinds of crystals were collected. The first kind were small white polygonal crystals, m.p. 131-132°C. The second one were white needle like crystals, m.p. 120-121°C.

By comparison of chemical reaction, physical properties, spectral data and literature surveys, it was found that :

White amorphous substance, m.p. 85-86°C was myricyl alcohol

White needle like crystal, m.p. 120-121°C, was phebalosis

Small white polygonal crystal, m.p. 131-132°C was 7-methoxy-8-(1',2'-diol--3-methyl-3'-butenyl)-coumarin. - K.N.

199. PRANKPRAKMA, Virat. The chemical examination of "Sadao" Meliaceae Azadiracta indica. Master of Science (Organic Chemistry) Thesis. Bangkok, Mahidol University, 1970, 27 p.

From the petroleum ether extract of Meliaceae Azadiracta indica, one steroid which was assigned to β -sitosterol and one triterpenoid derivative "nimbolide" was isolated. - Author.

200. PRARAGGAMO, Sommai. Screening test for alkaloids, triterpenoids, steroids in Thai medicinal plants and the identification of alkaloids in Holarrhena antidysenterica. (การตรวจสอบอัลคาลอยด์ ไตรเทอร์ปีนอยด์ สเตอรอยด์ ในสมุนไพรไทย และการหาสูตรโครงสร้างของอัลคาลอยด์ในเปลือกไม้กหลวง) Master of Science Thesis. Bangkok, Chulalongkorn University, 1970, 63 p. (In Thai with Engl. summ.)

Among acid extracts of 161 kinds of Thai medicinal plants, 43 gave positive results with alkaloid precipitating reagents, and among ether extracts for testing triterpenoids and steroids, most gave positive results with conc. H_2SO_4 and Libermann Burchard Test.

After several steps of solvent extraction and chromatography, three alkaloids of Holarrhena antidysenterica were separated.

- a. holarrhimine $C_{21}H_{36}ON_2$ m.p. 183-184°C
- b. isoconessimine $C_{23}H_{38}N_2$ m.p. 93-94°C
- c. conimine $C_{22}H_{36}N_2$ m.p. 133-134°C. - K.N.

201. PRUCKSUNAND, Panich; ATISOOK, Panit and CHULKARAT, Pra-passorn. Diuretic action of Cassia tora Linn. Mahidol University Annual Research Abstract 1979. Bangkok, Mahidol University, 1979, p. 75.

The diuretic effect of Cassia tora Linn. was examined in ten anaesthetized dogs. Three parameters for assessing this effect, i.e. arterial blood pressure, renal blood flow and glomerular filtration rate were measured with Statham strain gauge, electromagnetic flowmeter and creatinine clearance, respectively. Each urine sample was collected for 30 minutes period. Two consecutive periods of steady urine flow was designated as baseline control. Each subject functioned as its own control. Ten percent solution of Cassia tora Linn extract, 1 ml/Kg. body weight, was administered intravenously right after control value was obtained, at the average rate of 5.5

ml/min. The mean arterial blood pressure and renal blood flow dropped 39% and 48% of control value, observed immediately after the injection. On the contrary, the glomerular filtration rate and urine flow during the first 30 minutes period of collection showed no significant change. The result of our work was by no mean supported the said effect of Cassia tora Linn previously reported. - Authors.

202. PUTTA, Phensaeng. Anatomical study of Strobilanthes niveus Craib. (การศึกษากายวิภาคของต้นเนย) Master of Science Thesis. Bangkok, Chulalongkorn University, 1967, 79 p. (In Thai with Engl. summ.)

The shoot apex of Strobilanthes niveus Craib is of the tunica-carpus pattern consisting of two tunica layers and a region of corpus. The outline of the stem is oval. Two types of trichomes are differentiated in the epidermis: the uniseriate and the glandular hairs. The cortex comprises angular collenchyma and parenchyma tissue. The endodermis is conspicuous and there is no pericycle. The cork cambium originates from the epidermal cell. The leaf originates from the second tunica layer and the corpus, and it takes about 2 months for a 0.5 mm. leaf to reach the mature stage. The stomatal apparatus is composed of a pair of guard cells surrounding each stoma, and two pairs of subsidiary cells arranged in the caryophyllaceous type. There are two to nine protoxylem arms in the adventitious root of Strobilanthes niveus Craib. The raphide crystals and the cystoliths are found in the stem and the leaves. Cystoliths are also found in the old root. - K.N.

203. RATANACHAI, Thongchai. Studies of Artocarpus lakoocha Roxb. Moraceae. Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1962, 56 p.

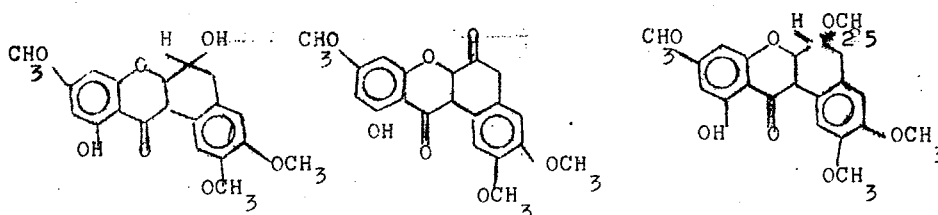
Two formulas of 2:4:3':5' tetrahydroxystilbene tablets each containing 0.5 gm of the active ingredients were presented. The Formula No. II is recommended in this work because of its shorter rate of disintegration which is advisable for the preparation containing the drug used against tape worm infestations.

The identification tests and two methods of assaying of the tablet containing 2:4:3':5' tetrahydroxystilbene were provided. Of the two methods of assaying

given in this work, the gravimetric method was found suitable and more accurate than that of the spectrophotometric method. - Author.

204. ROENGSUMRAN, Sophon. Natural rotenoid from the Stemona collinsae Craib. (สารประกอบโรตีนอยด์จากต้นหนอนตายอยาก) Master of Science Thesis. Bangkok, Chulalongkorn University, 1973, 42 p. (In Thai with Engl. summ.)

The study deals with the structures of two new rotenoids isolated from the roots of Stemona collinsae Craib. The compounds had been named stemonal II and stemonone (III). The formulae were :



II

III

I

Supports for the structures of II and III were provided by chemical reaction and spectral data. Comparison of their m.p.'s, IR's, NMR's and mass spectra showed the reaction products and natural I and II to be identical in all respects. Oxidation of II with CrO_3 led to a compound which was found to be stemonone III.

Attempts to prepare the stemone were carried out by the method that was described for the synthesis of rotenone. This led to four new compounds. - K.N.

205. RUANGRUNGSI, Nijsiri. อัลคาลอยด์จากใบกระพุ่ม (The alkaloids of Anthocephalus chinensis leaf) Master of Science (Pharmacy) Thesis, Bangkok, Chulalongkorn University, 1977, 87 p.

By means of alumina column chromatography, an indole glycosidic alkaloid was isolated from the leaves of Anthocephalus chinensis Achille Richard.

The physical and chemical properties and spectroscopic evidence have shown that it is 3~~α~~-dihydrocadamine.

The biogenesis of Anthocephalus alkaloids was studied and the chemotaxonomic significance of alkaloids in the Naucleaeae has been discussed. - Author.

206. SADAVONGVIVAD, Chiravat; THEBTARANONTH, Yodhathai; BORSUB, Laddawun and RUCHIRAWAT, Somsak. A Unified hypothesis for pharmaceutical and biological studies of anthelmintic berry of Diospyros mollis. Mahidol University Annual Research Abstracts 1975. Bangkok, Mahidol University, 1976, p.169. Also published in Tetrahedron Letters No.2, 1976 : 105-108.

The fresh berry of D. mollis has been employed with great success in mass treatment of hookworm in Thailand for many years. The drug is cheap, very effective and has low toxicity; but its uses have been limited seriously by several formidable problems like rapid deterioration and short seasonal availability. Preservation of berry or isolated compound is a clear solution; synthesis of active compound is another. Unfortunately, no useful solution has been reported after several decades of research : only diospyrol, a bis-1, 8-naphthol, and a few derived quinones have been identified. Purified diospyrol has been shown repeatedly to be active both in vitro and in vivo, but the effective dose was much higher than could be present in equipotent quantity of fresh berry. Synthesis of diospyrol is tedious and expensive; synthesis of potentially active derivatives of diospyrol is futile since the real active compound is not known with sufficient clarity. Acetate and other common agents which protect 1, 8-dihydroxyl by ester or ether formation, e.g. acetone sulfurdioxide, and carbonmonoxide resulted in compounds which have been reported to be inactive. A systematic approach must depend on knowledge of chemical natures, bioavailability and modes of action of the active compounds. We have succeeded in devising a new extraction procedure which allowed isolation of a new diglucoside of diospyrol. This coupled with our discovery of monomer of diospyrol a dozen years ago forms the basis for a concept that a sequence of chemical conversions exists in the berry : the dihydroxynaphthalene monomer formed biosynthetically exists as monoglucoside; two of this forms

the diglucoside we discovered and is most likely the orally active form since its higher water solubility should make it more bioavailable and hence more active than diospyrol. Further conversion can be predicted and is important mainly in study of mechanism of action and active form at the worm level. Chemical isolation of aglycones were probably artifacts; further studies of preservation, chemical manipulation or other pharmaceutical problems should be directed to the glycosides. - Authors.

207. SAMAKOM RONGRIAN PHAET PHAENBORAN. บัวผอบ (Butea frondosa) In : ประมวลสรรพคุณยาไทย (Pramuan Saphakun Ya Thai) Bangkok, Samakom Rongrian Phaet Phaenboran, 1964, p.108. (In Thai)

Report on description and medicinal uses. - R.K.

208. SAMAKOM RONGRIAN PHAET PHAENBORAN. กระดังงาไทย (Canangium odoratum) In : ประมวลสรรพคุณยาไทย (Pramuan Saphakun Ya Thai.) Bangkok, Samakom Rongrian Phaet Phaenboran, 1964, p. 12-13. (In Thai)

Report on description and medicinal uses. - R.K.

209. SAMAKOM RONGRIAN PHAET PHAENBORAN. ฝอย (Cassia fistula) In : ประมวลสรรพคุณยาไทย (Pramuan Saphakun Ya Thai.) Bangkok, Samakom Rongrian Phaet Phaenboran, 1964, p.77-78. (In Thai)

Report on descriptive and medicinal uses. - R.K.

210. SAMAKOM RONGRIAN PHAET PHAENBORAN. ขี้พัน (Cinnamomum siamense) In : ประมวลสรรพคุณยาไทย (Pramuan Saphakun Ya Thai) Bangkok, Samakom Rongrian Phaet Phaenboran, 1964, p. 160-162. (In Thai)

Report on morphological description and medicinal uses. - R.K.

211. SAMAKOM RONGRIAN PHAET PHAENBORAN. กานพลู (Eugenia aromatica) In : ประมวลสรรพคุณยาไทย (Pramuan Saphakun Ya Thai.) Bangkok, Samakom Rongrian Phaet Phaenboran, 1964, p. 78-79. (In Thai)

Report on description and medicinal uses. - R.K.

212. SAMAKOM RONGRIAN PHAET PHAENBORAN. กระเจี๊ยบขาวและกระเจี๊ยบแดง (Hibiscus esculentus and H. sabdariffa) In : ประมวลสรรพคุณยาไทย (Pramuan Saphakun Ya Thai.) Bangkok, Samakom Rongrian Phaet Phaenboran, 1964, p. 5-6. (In Thai)

Report on description and medicinal uses. - R.K.

213. SAMAKOM RONGRIAN PHAET PHAENBORAN. กระถินไทย (Leucaena glauca) In : ประมวลสรรพคุณยาไทย (Pramuan Saphakun Ya Thai.) Bangkok, Samakom Rongrian Phaet Phaenboran, 1964, p.19. (In Thai)

Report on description and medicinal uses. - R.K.

214. SAMAKOM RONGRIAN PHAET PHAENBORAN. กระท้อน (Mitragyna speciosa) In : ประมวลสรรพคุณยาไทย (Pramuan Saphakun Ya Thai.) Bangkok, Samakom Rongrian Phaet Phaenboran, 1964, p.33. (In Thai)

Report on description and medicinal uses. - R.K.

215. SAMAKOM RONGRIAN PHAET PHAENBORAN. ขอบ (Streblus asper) In : ประมวลสรรพคุณยาไทย (Pramuan Saphakun Ya Thai.) Bangkok, Samakom Rongrian Phaet Phaenboran, 1964, p.200-201. (In Thai)

Report on description and medicinal uses. - R.K.

216. SAMBHANDHARAKSA, Chanai, and RATANACHAI, Tongchai. การศึกษาทางเภสัชวิทยาและพฤกษเคมีของต้นมะหาด (Pharmacognostical and phytochemical studies of Artocarpus lakoocha Roxb.) วารสารสำนักงานคณะกรรมการวิจัยแห่งชาติ (Journal of the National Research Council of Thailand) 3(4), 1962 : 245-255. (In Thai with Engl. summ.)

The morphology and microscopical characteristics of the stems, branches and roots of the Mahaad tree (Artocarpus lakoocha Roxb.) which contains a vermifuge useful for the treatment of tapeworm infection were studied and recorded in detail with illustrations in order to serve as references for the identification of this plant in the future.

Chemical analysis of Artocarpus lakoocha Roxb. species which grow wild all over Thailand showed that the stems contained as high as 11-13 per cent of the vermifugal principle, 2:4:3':5'-tetrahydroxystilbene; the branches and roots much less; and the leaves and barks none.

By testing various methods of isolating 2:4:3':5'-tetrahydroxystilbene from these plants it was found that extraction with ether and then crystallization in water gave the best yield and the highest potency. - Authors.

217. SANGSIRINAVIN, Chavengkiat and DHORRANINTRA, Boonchua. Action of Centella asiatica glycoside on urinary flow in rats. Mahidol University Annual Research Abstract 1979. Bangkok, Mahidol University, 1979, p.69.

Immediately after intravenous injection to water-loaded rats under ethanol anesthesia, the glycoside extracted from the dry whole plant of Centella asiatica (BOA-BOK) produced a very slightly increase in urinary flow lasting about 5-10 minutes. This effect was probably resulted from the expansion of plasma volume or by the increase in renal blood flow caused by peripheral vasodilating effect of the glycoside which occurred concomitantly. This very mild diuretic effect was followed by a prolong antidiuretic action which was possibly mediated by the reflex release of endogenous vasopressin from neurohypophysis in response to the hypotensive action of the glycoside. - Authors.

218. SARALAMP, Promchit. Pharmacognostic and botanical identity of Ka-lum-pak Sa-lad-dai, Euphorbia antiquarum Linn. Mahidol University Annual Research Abstracts 1977. Bangkok, Mahidol University, 1977, p.334. Also published in วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Varasarn Paesachsarthara Mahidol University) 3(1), Jan-Mar. 1976 : 36-42.

Ka-lum-pak Sa-lad-dai is a dried stem wood obtained from Sa-lad-dai. The entire plant is identified as Euphorbia antiquarum Linn. (Euphorbiaceae) and pharmacognostic studies of the market Ka-lum-pak Sa-lad-dai with genuine specimens are made. The morphological and microscopical characteristic are described and illustrated. - Author.

219. SARALAMP, Promchit and KULKANJANATORN, Pitsamai. Thai crude drugs, their preparations and specifications. No.1 Euphorbia antiquorum Linn. stem wood. Mahidol University Annual Research Abstracts 1977. Bangkok, Mahidol University, 1977 : p.331. Also published in วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Varasarn Paesachsarthara Mahidol University) 3(2), April-June 1976 : 75-82.

Pharmacognostic and botanical identity of Ka-lam-pak Sa-lat-dai, Euphorbia antiquorum Linn. are described as well as their chemical identifications, purity, total ash and ancient usage. - Authors.

220. SATAYAPANTA, Laddawan. Phytochemical survey (alkaloids) in certain plants of Apocynaceae, Acanthaceae, Solanaceae, Rubiaceae, & Leguminosae. Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1963, 83p.

Alkaloids were extracted from 5 families of plants namely Acanthaceae, Apocynaceae, Rubiaceae, Solanaceae, and Leguminosae. The four types of extraction used for each plant are : Prollium extract (I) and (II), Hydrochloric acid extract, and the University of Malaya method. Each of the extraction fluids is tested by 5 alkaloid reagents. Brucine HCl⁻ is used as standard. If the plant extracts show ++++ or +++ on testing, they are considered to contain alkaloids; if they show ++ or +, they are considered negative.

Tests are made by paper chromatography to determine the presence as well as the amounts of alkaloids in the plants. Out of about 90 species tested only 36 species are found to contain alkaloids. - K.N.

221. SCHALLER, R. Khoi (Streblus asper.) Ein Beitrag zur pharmakognosie der wirtschafts-und Arzneipflanzen Thailands. (A contribution to the pharmacognosy of the economically important and medicinal plants of Thailand). The Natural History Bulletin of the Siam Society 16, 1954 : 49-60. (In German)

"Khoi", Streblus asper is a very interesting Thai plant which finds versatile application in Thai Medicine, Khoi also supplies the raw material for Khoi paper which is not eaten by the white ants. Khoi trees are used frequently in making fishing stakes as they are not attacked by the barnacles.

Morphology and histology of the root, wood with bark, the leaf and the seed is described as far as it is necessary for identification of the drug. The process of making Khoi paper as a cottage industry is explained. Unfortunately this old Thai handicraft is already practically extinguished. - Author.

222. SCHALLER, VON RUDOLF. Beitrag zur Pharmakognosie der Arznei- und wirtschaftspflanzen Siams. (Report on pharmacognostic of the medicinal and economical plants of Siam). The Natural History Bulletin of the Siam Society 14(2), 1947 : 57-86. (In German)

The bark of Holarrhena antidysenterica has in recent years met with great interest in India for its valuable properties. Owing to the shortage of Ipecacuanha root during the war in Siam, Holarrhena bark, called "mog luang" in siamese was much used as a substitute for Ipecac. The therapeutical results have been promissing and justify a closer study of the drug. This paper describes the pharmacognostic features and microchemical methods including an alkaloid test by micromeltingpoint determination to identify the drug and differentiate it from barks not containing any active principle at all.

The leaves of Mitragyna speciosa, called "gratom" in Siamese, have long been used in this country as a stimulant, which is however habit forming. Therefore since 1942 the drug is controlled by a law prohibiting cultivation and sale. As the illicit market continues to deal with substantial quantities of it, means to identify the drug in its various preparations had to be found. This paper describes the pharmacognostic features of the drug and microchemical methods including an alkaloid test by micromeltingpoint determination to identify it even if disintegrated. - Author.

223. SHIENGTHONG, D.; KOKPOL, U.; KARNTIANG, P. and MASSY-WESTROPP, R.A. Triterpenoid constituents of Thai medicinal plants : II. Isomeric aglatriols and aglaiondiols. Tetrahedron 30(14), 1974 : 2211-2215.

Three new tetracyclic triterpenes, aglaiondiols and 2 isomers of aglatriol, were isolated from the light petroleum extracts of leaves of Aglaia odorata. The isomers of aglatriol were separated by fractional crystallisation of the triacetates which on hydrolysis gave 2 epimers. Their structures and that of aglaiondiols were established by interconversion with aglaiol. - Biol. Abstr. 58, 1974.

224. SHIENGTHONG, D.; VERASARN, A.; NANONGGAI-SUWANRATH, P. and WARNHOFF, E.W. Constituents of Thai medicinal plants-I Aglaiol. Tetrahedron 21, 1965 : 917-924.

Five crystalline compounds have been isolated from the leaves of the oriental medicinal plant Aglaia odorata Lour. (Meliaceae). One of these (aglaiol) is a tetracyclic triterpene, $C_{30}H_{50}O_2$, which according to chemical reactions and spectra is shown to possess structure I. This formula was confirmed by correlation with a derivative from dammaradienyl acetate (VII). - Authors.

225. SILAPA-ARCHA, Weena and WERAWATTANAMETIN, Kittipong. Cassia alata Linn. (Chum-Hed-ted). วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 4(1), 1977 : 1-9.

Report on description, microscopy, identification and ancient usage. - R.K.

226. SILPVISAVANONT, Yupa. อัลคาลอยด์จากต้นโง้ว (Alkaloids from Uncaria quadrangularis Geddes.) Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, Faculty of Pharmacy, 1975, 102 p.

Oxindole alkaloids were isolated from leaves and stem bark of Uncaria quadrangularis Geddes (Rubiaceae) by means of column chromatography.

Mitraphylline and isomitraphylline are isolated from the leaves; pteropodine and isopteropodine are isolated from the stem bark of this plant. The physical and chemical properties of these four oxindole alkaloids were studied. - Author..

227. SOMNAPHAN, Aem-on and BUNYAPRAPHATSORN, Nunthawun. สารสำคัญจากพืชและคุณสมบัติทางเภสัชวิทยา (Plant constituent and their general pharmacology) การศึกษาเชิงปฏิบัติการ-พฤกษเคมีครั้งที่ ๑ (Phytochemical Screening Techniques), Bangkok, Mahidol University, 1978, p.1-27. (In Thai)

Report on extraction of alkaloids, glycosides and terpenes from medicinal plants. Besides it was included a list of medicinal plants, active ingredients and pharmacological effect. - R.K.

228. SRIPROMA, Charindr; SANGTONGPRAOW, Suvit and KHOBKHATTA, Obhas. Study and collection of some poisonous and medicinal plants in Thailand. Bangkok, Kasetsart University, Annual Research Reports, 1970, p.451-464.

Species of poisonous plants, the district features of each species were sorted out and were arranged into the attached table of 18 species were collected according to their details from 50 species in the year 1970. - Authors.

229. SUDACHAN, Keson. The active principles in Derris trifoliata (การสกัดควายจากต้นถอบแถบนา) Master of Science Thesis. Bangkok, Chulalongkorn University, 1967, 74 p. (In Thai)

By application of column chromatography in fractionating crude extracts obtained from aerated and powdered Derris trifoliata using aluminium oxide as adsorbent and petroleum ether as eluent, and then purifying the fractionated substances by means of fractional crystallization, column chromatography, thin layer chromatography and derivative formation; the following chemical compounds were found:

1. Ceryl alcohol $C_{26}H_{54}O$ m.p. 79-80°C
2. Lupeol $C_{30}H_{50}O$ m.p. 213-214°C
3. β -Sitosterol $C_{29}H_{50}O$ m.p. 136-137°C
4. Stigmasterol $C_{29}H_{48}O$ m.p. 168-169°C

In addition, certain compounds with m.p. 120-121°C, 166-168°C, 198-204°C were also found, but their identification has not been made. K.N.

230. SUKSINGAM, Banyat. ประสิทธิภาพของเครื่องเทศในการยับยั้งการเจริญของจุลินทรีย์ (Efficiency of spices in stopping the growth of bacteria) วิทยาศาสตร์ (Science) 31(8), 1977 : 27-36. (In Thai)

Report on essential oil, food preservative and medicinal uses of many kinds of spices. - R.K.

231. SUPAVILAI, Pornthip; REUTRAKUL, Vichai and SADAVONG-VIVAD, Chiravat. Uterine relaxant effect of Alyxia reinwardtii (cha-lood) : isolation, identification, and pharmacodynamic properties of active constituents. Mahidol University Annual Research Abstracts 1973. Bangkok, Mahidol University, 1973 : 190.

Several species of Alyxia have been used locally in making perfume, tobacco products, and a number of therapeutic concoctions of traditional medicine. This study was started because of the following reasons : the Apocynaceae family, to which the Alyxia belong, have been an important source of several important drugs in modern medicine, yet, no study of this genus has been reported; the need of knowing the efficacy and toxicity of the plants; and the potential applications of local resource. The results indicate that the Alyxia plants are extremely rich in coumarins. No alkaloid has been detected. Among the five coumarins that we have isolated and purified two have been identified as coumarin and scopoletin by spectroscopic data (NMR, UV, IR) and comparisons with authentic compounds. Both compounds are active in relaxing the uterine smooth muscle of the rat primed with estrone and stimulated with either barium chloride or methacholine. In addition, both compounds inhibit spontaneous contraction of intestinal smooth muscles from various animal species and may possess specific anticholinergic activity in the guinea pig intestine. - Authors.

232. SUPAVITA, Tanomjit. อัลคาลอยด์จากต้นโง้ง (Alkaloids of Uncaria attenuate Korth.) Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, Faculty of Pharmacy, 1979, 245 p.

Heteroyohimbine and oxindole alkaloids have been isolated from the leaves of Uncaria attenuata Korth. (Rubiaceae) by means of column chromatography. The isolated heteroyohimbines are tetrahydroalstonine, and rauniticine which has never been reported as being present in this genus before. Physical and chemical properties including chemical transformations of these two alkaloids are studied. One novel heteroyohimbine, not previously been report elsewhere either naturally or synthetically, has been obtained. From the physical and chemical properties being studied, it is assigned

as 14-hydroxy-3-isorauniticine. A detailed discussion on the elucidation of chemical structure is included. Only small quantities of two oxindoles have been obtained and traces of another oxindole is revealed. A discussion of the so far reported alkaloidal content of the genus Uncaria is presented. - Author.

233. SUPHAT, Phannasri. Active principles in Boesenbergia pandurata (กระชาย) Master of Science Thesis. Bangkok, Chulalongkorn University 1964, 31 p. (In Thai)

Dried Boesenbergia pandurata were ground and extracted with petroleum ether and acetone respectively. Two kinds of flavanones which had relating structural formula were found. The one which was extracted with petroleum ether was Pinostrobin, the structural formula was 5-methoxy-7-methoxyflavanone. Another which was extracted with acetone was 5-methoxy-7-hydroxyflavanone namely Alipinetin. These two chemical compounds could be found in the cores of variety of pine trees, but some in Boesenbergia pandurata. - Author.

234. SUWAKHON, Chamlong. สมุนไพรบางอย่างที่น่าสนใจ (Some interesting Thai medicinal plant) จดหมายเหตุแพทยสมาคมแห่งประเทศไทย (Journal of the Medical Association of Thailand) 42 (6), 1959 : 659-663. (In Thai)

Review some interesting Thai medicinal plants. - R.K.

235. TAGUCHI, Heihachiro; KANCHANAPEE, Panida and AMATAYAKUL, Thanomwang. The constituents of Clitoria macrophylla Wall. Cat., a Thai medicinal plant. The structure of a new rotenoid, clitoriacetal. Chemical and Pharmaceutical Bulletin 25(5), 1977 : 1026-1030.

A new rotenoid, clitoriacetal (I), has been isolated from the crude drug named "Non-tai-yak," which was identified as the root of Clitoria macrophylla Wall. Cat. (syn. C. hanceana Hemsl., Leguminosae) by the comparison with the authentic specimen, together with a known rotenoid, stemonacetal(II).

The structure of clitoriacetal was elucidated to be I by chemical and spectral analysis. - Authors.

236. TANGKONGCHITR, Uraiwan. Extraction of organic compounds from leaves of Vinca rosea Linn. (การสกัดสารประกอบอินทรีย์จากใบพวงพวยฝรั่ง) Master of Science Thesis. Bangkok, Chulalongkorn University, 1973, 42 p. (In Thai with Engl. summ.)

Dry powdered Vinca rosea leaves were refluxed with benzene in a Soxhlet apparatus. The alkaloid was separated by dissolving the crude extract in HCl solution; the acidic solution was filtered and neutralized with NH_4OH solution. The acid-insoluble part was dissolved in benzene. The benzene-soluble part was separated by means of column chromatography. The column was eluted with petroleum ether and various proportions of ether in petroleum ether. Two kinds of crystal were found. The first one was eluted by 5% ether in petroleum ether and had an m.p. of 88°C . The other, eluted by 10% ether in petroleum ether, had an m.p. of $138-139^\circ\text{C}$.

The benzene-insoluble greenish black solid was purified by washing with cold petroleum ether and chloroform. The remaining solid was crystallized in hot chloroform, and the mixed solvent of methanol-ethanol and soluble ethanol. Needle crystals, m.p. $279-280^\circ\text{C}$, were obtained.

By means of chemical reactions, IR spectra, TLC, and mixed melting point determination, it was found that

crystal of m.p. 88°C was myricyl alcohol.

crystal of m.p. $138-139^\circ\text{C}$ was β -sitosterol.

crystal of m.p. $279-280^\circ\text{C}$ was Ursolic acid. - K.N.

237. TANTIWAT, Phayom. Cardiac glycosides in Strophantus (ฝรั่งนองเครือ) and Corchorus capsularis (ปลอกะเจา) Bangkok, Faculty of Pharmacy, Medical University, 8 p.

Report on description and extraction of Strophantus and Corchorus capsularis. - R.K.

238. TANTIWAT, Phayom. Medicinal plant. Bangkok, The Pharmacognosy Society of Thailand, 1978, 147 p. (In Thai)

Report on botanical identity and medicinal properties of Thai medicinal plants in alphabetical arrangement of scientific names. - K.P.

239. TANTIWAT, Phayom and JIRAWONG, Wichian. ลูกจันทน์เทศและดอกจันทน์เทศ (Nutmeg and Mace) วารสารองค์การเภสัชกรรม (Warasarn Ongkan Phaesachakam) 3(1-2), 1977 : 25-40. (In Thai)

Report on history, botanical description, fixed oil, essential oil and medicinal uses of nutmeg. - R.K.

240. TANTIWAT, Payom; BAVOVADA, Rapeepol, and JIRAWONG, Wichian. อลกาลอยด์จากใบลำโพงในประเทศไทย (Alkaloids of the leaves of Datura metel Linn. growing in Thailand. วารสารสำนักงานคณะกรรมการวิจัยแห่งชาติ (Journal of the National Research Council of Thailand) 10, 1978, 77-84.

Four alkaloids were isolated from leaves of Datura metel Linn. (Lam-Pohng) by means of preparative layer chromatographic techniques.

The alkaloids found are scopolamine (main alkaloid), hyoscyamine and a mixture of two unidentified alkaloids. - Authors.

241. TANTIWAT, Phayom; WIRAWONG, Wichian; SILPWITSAWANON, Yupa and WONGLAK, Thawadi. อลกาลอยด์จากต้นโงม (The alkaloids from Uncaria quadrangularis Geddes) บทความวิจัย ผลงานวิจัย 2518-2520 จุฬาลงกรณ์มหาวิทยาลัย (Abstracts 1975-1977 Chulalongkorn University) Bangkok, Chulalongkorn University 1978, p.76. (In Thai)

By using column chromatography, 6-xindole alkaloids were separated from the leaves and barks of Uncaria quadrangularis Geddes. The alkaloids from the leaves were mitraptrylline and isomitrapleylline, from the barks were ptuopodine and isoptuopodine. The chemical and physical properties of four 6-xindole were also studied. - Authors.

242. TEJASEN, Phani and THONGTHAB, Chatchawadee. การแก้พิษงูเห่าในสัตว์ทดลอง เปรียบเทียบการให้สมุนไพรรคกรดโคสเตอร์อยและเซรัมแก้พิษงู (The antagonistic effect against cobra envenomization : comparison of medicinal plants, cor-

tico-steroid and antivenine) เชียงใหม่เวชสาร (Chiang Mai Medical Bulletin) 17(4), 1978 : 159-168. (In Thai with Engl. summ.)

The death rate of rats during investigation of acute toxicity from cobra envenomization was influenced by venom concentration administered and body weight of rats. The higher the venom concentration, the greater the mortality rate was obtained. The adult rats were more tolerated to cobra venom than younger rats.

The maximum effective oral doses of Wan Ngu and Sled Pang Porn against LD 100 of cobra envenomization were found to be 0.2 ml. plant extract (100%, wet W/V) per 100 gm body weight; of Hydro-adreson (subcutaneous route) was 0.1 ml. (5gm/ml H₂O) per 100 gm body weight of rat. The above tested drugs were administered within 15 minutes after cobra venom injection and repeated twice at one hour interval. In addition, antivenine "Cobra" (1 vial/10 ml H₂O) 0.2 ml/100 gm administered subcutaneously within 15 minutes and repeated 3 times at one hour interval after LD 100 of cobra envenomization is also the maximum effective dose. Those maximum effective dose represented the doses of Wan Ngu, Sled Pang Porn, Hydro-adreson and antivenine, which decrease the mortality rate of mice from 100% death to be $60 \pm 5.77\%$, $63 \pm 3.34\%$, $67 \pm 3.34\%$ and $6 \pm 5.77\%$, respectively.

If the venom amount was higher than LD 100, death rate of rats was not decreased eventhough the maximum effective dose of Wan Ngu, Sled Pang Porn or cortico-steroid (as mentioned above) was used. However, antivenine could safe the animal life ($p < 0.01$) when venom dose was higher than LD 100. - Authors.

243.. THANOMKIAT, Montree, ฤทธิ์ทางเภสัชวิทยาของผักบางชนิดต่อระบบการหมุนเวียนของโลหิตในสัตว์ทดลอง (Pharmacological actions of some common vegetables on the cardiovascular system of Experimental animals.) Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, Faculty of Pharmacy, 1975, 127 p.

The pharmacological action of 7 common vegetables (Garden balsum, Manglug, Sweet Basil, March Mint,

Coriander, Pugshefarang, Garden Celery) on the cardiovascular system was studied in the experimental animal (dog). The common vegetables were extracted by decoction and made to 50% concentration. From the experimental data showed that all of those vegetables had hypotensive effect in the dog, and suggested that their effect was due to direct action of the decoction on heart muscle. - Author.

244. THEBTARANONTH, Yodhathai. "Putranjinin" the new biflavonyl from the leaves of Euphorbiaceae, Putranjiva roxburghii, Wall. Master of Science (Organic Chemistry) Thesis. Bangkok, Mahidol University, 1968, 61 p.

From the ethereal extraction of Euphorbiaceae, Putranjiva roxburghii, Wall leaves a flavonoid compound named "Putranjinin" was isolated. Chemical and spectroscopic evidences show that it is a new biflavonyl belonging to the 3'-8" linked family, which increases the numbers of this family to a total number of nine. - Author.

245. THIRAPATSAKUN, Laojana and PHANURAI, Prakong. การศึกษาพิษของพืชมงคลตามฤดูกาล (The studies on toxicity of Stemona curtisii Hook f. on the house fly larvae.) วารสารของกรมวิทยาศาสตร์การแพทย์ (The Bulletin of the Department of Medical Sciences) 19(4), 1977 : 217-227. (In Thai with Engl. summ.)

The Stemona is a plant which can be easily found in Asia. It has been used as an active ingredient of several mixtures such as cough syrup, carminative drug, antihelminth and also be used as a pesticide for pepper in the eastern part of Thailand. The method of this study was to expose house fly larvae in the different mixtures of the water extract of Stemona and fly media at the concentrations of : 0.04, 0.08, 0.32 and 0.64 gm per 30 gm larvae media. The mortalities of the larvae were 28.21%, 34.514, 60.649, 80.955 and 92.757% respectively. LC_{50} was 0.12 gm per 30 gm larvae media or 0.4%. The characteristic of larvae died of Stemona were similar to the larvae died of toxic substances. It was also found that the Stemona could produce abnormal pupae which were unable to develop to adult. - Authors.

246. THONGPOON, Anong. การศึกษาทางพฤกษเคมีของใบและรากของต้น
ชาแปน (A phytochemical study of Solanum verbascifolium
leaf and root.) Master of Science (Pharmacy) Thesis.
Bangkok, Chulalongkorn University, Faculty of Pharmacy,
1975, 156 p.

By means of column chromatography, three steroidal glycoalkaloids were isolated from the leaves and roots of Solanum verbascifolium L. The physical and chemical properties have shown that the three alkaloids are solasodine monoglucoside, solamargine, and solaseneine. Upon hydrolysis the three alkaloids yielded solasodine as their aglycone. - Author.

247. TIEWTHONG, Chamnong. The blood pressure reducing property of Rauwolfia serpentina, L. collected from various parts of Thailand. Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1957, 42p.

Defatted crude extract was made from five samples of finely ground and defatted powder of dried roots of Rauwolfia serpentina. Each sample was obtained from each Changwat. There are 5 Changwats in all, i.e. Kanchanaburi, Trat, Præ, Khon Kaen and Chiang Mai. The crude extract 1:100 dilution from each sample was used to study blood pressure reducing power of anaesthetized dog. The height of the amplitude and the time taken since the administration of the test dilution until the lowest point of the amplitude in the tracing were used as criterions for the comparison. The comparison of these two criterions among the five samples when considered statistically did not show any difference.

Microscopical examination of transversed sections of fresh roots also did not show any marked difference among them. - Author.

248. TIPTABIANKARN, La-Iad. The antioxidant action of 2:4:3':5'-tetrahydroxystilbene and some of its derivatives. Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1967, 42 p.

2:4:3':5'-tetrahydroxystilbene which was isolated from Artocarpus lakoocha Roxb. and its five derivatives were prepared. The antioxidant effect of the compound and its against rancidity of lard were determined.

It was found that 2:4:3':5'-tetrahydroxystilbene was a good antioxidant, as effective as Tenox II, while its derivatives, 2:4:3':5'-tetrabutryrate stilbene, 2:4:3':5'-tetrapalmitate stilbene, 2:4:3':5'-tetrapalmitate diphenyl ethane and butyrate ester of 2:4:3':5'-tetrahydroxy diphenyl ethane lost the parent effect. - Author.

249. TOURTIP, Tudsong. Pharmacognostic study of Curcuma zedoaria Rosc. rhizome. Mahidol University Annual Research Abstracts 1977. Bangkok, Mahidol University, 1977, p.329. Also published in วารสารเภสัชศาสตร์ มหาวิทยาลัยพายัพ (Varasarn Paesachasarthara Mahidol University) 3(2), April-June 1976: 84-90.

Macroscopic and microscopic studies of five samples of Curcuma zedoaria rhizomes selected from five traditional Thai-drug-stores in Bangkok and the authentic drug are carried out. It is macroscopically classified into round zedoary and long zedoary. The characteristic forms of epidermis, cork, cortex and stele in transverse sections of zedoary rhizomes are described as well as their characteristic shapes starch grain, tracheae, oil and resin in powdered drugs. - Author.

250. TOURTIP, Tudsong and LEUCHULASCHAN, Wantana. Thai crude drugs, their preparations and specifications. No.2 Curcuma zedoaria Rosc. rhizome Zedoary-Khamin-Oi. Mahidol University Annual Research Abstracts 1977. Bangkok, Mahidol University, 1977, p.333. Also published in วารสารเภสัชศาสตร์ มหาวิทยาลัยพายัพ (Varasarn Paesachasarthara Mahidol University) 3(3), July-Sept. 1976 : 147-153.

Pharmacognostic study and botanical identity of Curcuma zedoaria Rosc., Rhizome zedoary-Khamin-Oi are described as well as their chemical identification, total ash, acid-insoluble ash, volatile oil content and ancient usage. - Authors.

251. TRISDIKOON, Piti. Study on the alleged hypoglycemic effect of intanin leaves (Lagerstroemia speciosa, Pers) and some synthetic ureas and the neuropharmacological screening of butylurea. Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1972, 93 p.

Extract of intanin leaves (Lagerstroemia speciosa Pers) and two alkylated ureas (butylurea and methylurea) were studied as to their hypoglycemic effects on normal and alloxanized New Zealand female rabbits. The investigation indicated that the crude extract of intanin leaves and two ureas were without any detectable hypoglycemic effect on normal as well as alloxanized rabbits. Butylurea when given orally seemed to elevate the blood sugar levels which was accompanied by sedation and behavioral changes characterized by weakness of hindlimbs and forelimbs and the dropping of head. At high doses of butylurea, all rabbits became hypnotic. The enzyme systems responsible for the metabolic degradation of butylurea were found to be inhibited by SKF-525A and to be microsomal in nature. Butylurea may not share with barbiturates the property of activating the microsomal drug metabolizing enzyme systems. Butylurea has an anticonvulsant activity against the tonic convulsion due to pentylenetetrazol but not against the tonic convulsion due to pentylenetetrazol or due to strychnine. Butylurea acts on CNS thereby producing hypnosis in rats but not necessarily acting peripherally.
- K.N.

252. TRISONTHI, Paritat. Pharmacognostic study of Tinospora crispa Miers stem. วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 4(3), 1977 : 107-111.

Five samples of the crude drug of Tinospora crispa Miers selected from five traditional Thai - drug stores in Bangkok are studied pharmacognostically, compared to the authentic specimen. Their macroscopic and microscopic characters, however, are alike, somewhat different in the size, number of certain tissues and external appearance. - Author.

253. TRISONTHI, Paritat and SUPATWANICH, Porntip. Thai crude drugs; their preparations and specifications. No.6 Tinospora crispa Miers stem. วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Mahidol University Journal of Pharmaceutical Sciences) 5(2), April-June 1978 : 31-34.

Pharmacognostic and botanical identity of Tinospora crispa Miers stem are described as well as their chemical identifications, purity, total ash and ancient usage. - K.P.

254. UNAKUL, Sanong. การศึกษาสมุนไพรไทย ๒. เภสัชวิทยาของใบ-
ของพลาง (Pharmacological studies 2. Study of the
leaves of Erythrina fusca, Lour.) สารศิริราช (Siriraj
Hospital Gazette) 2(4), 1950 : 177-189. (In Thai
with Engl. summ.)

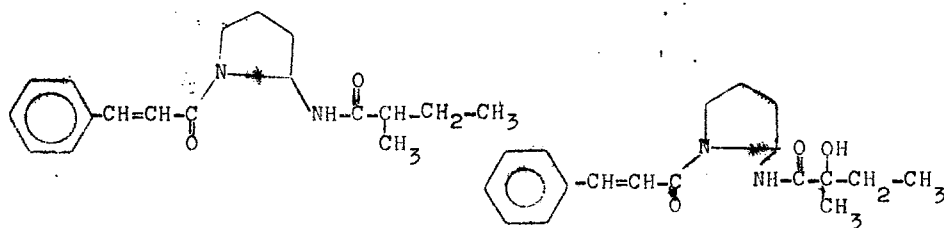
The leaves of Erythrina fusca, Lour. (E. ovalifolia, Roxb.) named in Siam "Tong Lang", "Tong Lang nam" or "Tong Lohng", are used as kitchen vegetable as well as for a few minor medicinal purposes, e.g. as a nauseant. The author made a thorough study of the leaves and found that they yield to alcohol an extract which may be separated by the use of alkaloidal precipitant (phosphomolybdic acid) into an alkaloidal and a non-alkaloidal (here termed "neutral") portion, each possessed of distinct pharmacological properties. Both are soluble in water, chloroform, acetone and in dilute acid and alkali. The "alkaloid" is distinguished by a paralytic action on autonomic ganglia, both sympathetic and parasympathetic; while the "neutral principle" is characterised by a strong stimulating action on the brain and spinal cord, resulting in sufficient dosage in epileptiform convulsion and death. Other actions of the "alkaloid" include moderate respiratory stimulation, probably central; stimulation of smooth muscle activity in small concentrations, depression in high concentrations; direct cardiac depression in sufficient dosage, causing fall in the blood pressure; mild diuretic action, through various influences. The "neutral principle" also stimulates the respiration, depresses the heart and arterial blood pressure, increases the urine secretion, causes emesis on intravenous injection in pigeons, but possesses a purely inhibitory action on smooth muscle. Attempts to obtain the substances in crystalline form have not met with success and, although only mild measures have been used in the extraction, especially in the application of heat, the possibility of the two fractions being decomposition products of one and the same principle cannot be ruled out. The relationship of the "alkaloid" to nicotine, cytisine and to erythrinine deserves interest. The paralysing action of the alkaloid on autonomic ganglia may serve as a particularly useful tool in pharmacology, since the substance is free from central action which might cause complications.

Calculated on the basis of animal experiments, a "convulsive dose" of the fresh leaves for man would correspond to about 5 Kg. per Kg. body weight, so that for an ordinary person the possibility of serious would be very remote indeed. - Author.

255. UNGPHAKORN, Aranee. The isolation and structural determination of nitrogen compounds from leaves of Aglaia odorata Lour. (การแยกและการหาสูตรโครงสร้างของสารประกอบไนโตรเจนจากใบประยงค์) Master of Science Thesis. Bangkok, Chulalongkorn University, 1974, 40 p. (In Thai with Engl. summ.)

After extractions of ground dried Aglaia odorata leaves (1.8 kg. from petroleum ether, the material was continuously extracted with several portions of fresh ether. Evaporation of this extract gave 5.1% of the crude product, which was chromatographed on a column of alumina. Elution with various mixtures of ether-petroleum ether and several recrystallizations gave four crystalline compounds, m.p. 83-5° (0.015%), 87-9° (0.008%), 218-9° (0.02%) and 166-8° (0.03%). The latter two, which are named odoratine and odoratinol, have been found to be new compounds.

The analysis of odoratine, m.p. 218-9°, $(\alpha)_D^{20} + 72.6$ has the formula $C_{18}H_{24}O_2N_2$ whereas odoratinol, m.p. 166-8°, $(\alpha)_D^{20} + 40.5$, fits best the formula $C_{18}H_{24}O_3N_2$. With IR, UV, NMR and mass spectral data and chemical evidence, these two compounds are shown to possess structures I and II, respectively. - Author.



I

II

256. UTHOKAPHAT, Chalo. ตำรับสมุนไพรรักษาไทย (Medicinal plant.)
นิตยสาร เกษตร อายุรวาท (Mitayasan Phesat Ayurawet) 3(4),
1967 : 10-37. (In Thai)

Report on cultivation, history, description and medicinal uses of Barleria lupulina. - R.K.

257. VALLISUTA, Omboon and VONGRATANASTIT, Thanomsri.
Amomum uliginosum Koenig, new botanical name for
"Bastard cardamom". Mahidol University Annual Research
Abstracts 1977. Bangkok, Mahidol University, 1977, p.
330. Also published in วารสารเกษตรศาสตร์ มหาวิทยาลัยมหิดล
(Warasarn Paesachsarthara Mahidol University) 3(1),
Jan.-Mar. 1976 : 18-26.

A "Reo" exported from Bangkok under the name of
"Bastard Cardamom" is known as "Reo-krawan" in the
province of Chantaburi, where, it is chiefly produced.
Until now it was understood that Bastard Cardamoms
or Reo-krawan are fruits of Amomum xanthioides Wall.
The authors have studied the plant that yields "Reo-
krawan" in the province of Chantaburi and concluded
that it is Amomum uliginosum Koenig. - Authors.

258. VARAVINIT, Saiyavit. A chemical study of some Thai
medicinal plants. Master of Science (Organic Chemis-
try) Thesis. Bangkok, Mahidol University, 1972, 48 p.
+ Appendix 12 p.

A mixture of long chain aliphatic alcohols, 1-
Hexatriacontanol, 1-Pentatriacontanol, 1-Tetracontanol,
1-Tritriacontanol, 1-Ditriacontanol, 1-Hentriacontanol,
1-Triacontanol, and 1-Nonaconsanol and a
mixture of β -sitosterol & stigmasterol were obtained
from the leaves of Pandanus odorus (Pandanaeae)

Abietic acid was obtained by isomerization of the
rosin of Pinus merkusii (Coniferae) in glacial acetic
acid.

An unidentified long chain ketone, β -sitosterol,
an a triterpenoid hydroxy acid, designated compound
X, were isolated from the bark of Walsura villosa
(Meliaceae)

All of these were characterized mainly on the
basis of their mass spectra, nuclear magnetic resonance,
gas chromatography, infrared and ultraviolet spectro-
copy. - Author.

259. VEERASARN, Vallapar. The observations of certain cardiac actions indigenous drug : Zingiber cassumunar Roxb. Master of Science Thesis. Bangkok, Mahidol University, 1967, 125 p.

There was a study the action of Plai Extract in the turtle's atrium and rat's right ventricle strip. It was found that the rate of spontaneous beating, the strength of isometric tension, the tonus, the excitability, the conduction velocity were depressed, but the muscle stiffness and the refractory period were increased by crude water extract of Plai. The negative inotropism could not block with atropine but easily antagonized with calcium. - Author.

260. VIBOOLCHAREON, Surati. การศึกษาถึงฤทธิ์ทางเภสัชวิทยา และพิษวิทยาของสิ่งสกัดจากเมล็ดคันทนแกว (The Study of pharmacology and toxicology of yam bean's seed extraction Pachyrrhizus erosus, Urb. (P. angulata)) Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, 1976, 60 p. (In Thai)

In the study of pharmacological and toxicological actions of the extracts of the Yam Bean Seed, the extracts with different solvents were given to the experiment animals. In rats the respiratory rate was first increased but later decreased, and the animals finally died with respiratory failure. In gold fish, the animals were stupefied, turn up side down and died.

The actions of the extracts after being defatted were also compared with that of acetylcholine on isolated guinea - pig ileum. There were contraction of smooth muscle, but these contractions started later than those due to acetylcholine. - Author.

261. VITAYANATPAISAN, Suntaree. กระดาษของอัลคาลอยด์ในใบโงม (Alkaloidal pattern in the leaves of Uncaria homomalla) Master of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, 1978, 173 p.

The studies of alkaloidal patterns in the leaf of Uncaria homomalla Miq. collected from the same plant at regular monthly intervals throughout a year indicated the presence of major pentacyclic oxindoles,

i.e. isopteropodine, pteropodine, speciophylline and uncarine F in all samples. The quantities of these four oxindoles varied from month to month. Traces of tetrahydroalstonine, a pentacyclic heterocyclic alkaloid and angustine, a pyridino-indolo-quinolizidinone were found to be present only in some samples. - Author.

262. VONGRATANASTIT, T. Thai crude drugs, their preparations and specifications, Amomum uliginosum Koenig seed. วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Warasarn Paesachasarthara Mahidol University) 3(4), Oct-Nov. 1976 : 201-207.

Pharmacognostic and botanical identity of Amomum uliginosum Koenig (Reo) seed are described as well as their chemical identifications, purity, total ash and ancient usage. - Author.

263. VONGRATANASTIT, Thanomsri and VALLISUTA, Omboon. Pharmacognostic study of Reo - Amomum uliginosum Koenig. วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Warasarn Paesachasarthara Mahidol University) 3(3), 1976 : 154-160.

The pharmacognostic study of Reo (เรอ) obtained from the local drug stores and the authentic specimens is performed. The macroscopical and microscopical characters of the seeds of Reo are described and illustrated. - Authors.

264. WASUWAT, Sasithorn. A list of Thai medicinal plants. Bangkok, ASRCT, 1967, 22 p. (Rep. no.1 on Res. Prog. 17)

Gives local names, botanical names, families, parts used, and habitats of indigenous plants used in Thai old-style medicine. The list includes 14 anthelmintics, 15 antidiarrheics, 20 antiinflammatory agents, 15 antileprosy agents, 19 antineoplastics, 22 antipyretics, 15 cardio- and neurotonics, 15 cathartics, 17 expectorants, 9 dermatologic agents, 17 diuretics, 10 tonics, and 15 antidysentery agents. - S.K.

265. WASUWAT, Sasithorn. Extract of Ipomoea pes-caprae (Convolvulaceae) antagonistic to histamine and jellyfish poison. Nature 225(5234), 1970 : 758.

Report on extraction, antihistaminic activity and medicinal uses of Ipomoea pes-caprae. - R.K.

266. WASUWAT, Sasithorn. Further investigation of pharmacologically active principles of Ipomoea pes-caprae (Linn.) Roth. (phakbungthale). Bangkok, ASRCT, 1969, 23 p., 5 figs. (Rep. no.2 on Res. Proj. 17/8)

Preliminary screening work has indicated pharmacological activity in some extracts of I. pes-caprae. The results of further chemical and pharmacological work have shown that some fractions possess anti-histaminic-like effect and that some fractions possess the opposite property as they contract the smooth muscle of the ileum of guinea pig. Attempts to obtain a substance having antihistaminic-like effect has been made. One aqueous extract fraction has been isolated and found to contain a substance (in approximate yield of 0.05-0.07%) that has been identified as an ester having promising antihistaminic-like action. The antihistaminic-like effect of this active substance (referred to as IPAS) has been compared with that of three official antihistaminic drugs (antazoline hydrochloride, antazoline methanesulphonate, and diphenhydramine hydrochloride) against the action of histamine dihydrochloride 2×10^{-6} solution on the isolated ileum of guinea pig. It has been found that about 6-9 times by weight of IPAS (6×10^{-5}) as compared with antazoline hydrochloride and antazoline methanesulphonate (1×10^{-5}) and about 60 times of IPAS (6×10^{-5}) as compared with diphenhydramine hydrochloride (1×10^{-6}) are required to exert similar effects.

The antagonistic effect of IPAS against jellyfish stings (using a diluted aqueous extract poison obtained from the tentacles of a large jellyfish) on the ileum of guinea pig has been examined in comparison with two official antihistamine drugs. About the same weight of IPAS (6×10^{-5}) as compared with antazoline methanesulphonate (6×10^{-5}), and about two time by weight of IPAS (6×10^{-5}) as compared with diphenhydramine hydrochloride (3×10^{-5}) are required to exert similar effects. - Author, modified.

267. WASUWAT, Sasithorn. Investigation of the alkaloid content of Thai Rauwolfia serpentina and formulation of tablets from the crude drug. Bangkok, ASRCT, 1967, 17 p., 4 figs. (Rep. no.1 on Res. Proj. 17/3)

Laboratory investigation has revealed that roots of Rauwolfia serpentina growing wild in Lamphun, Sukhothai, Loei, and Kanchanaburi readily meet pharmaceutical standards. Separation of the alkaloid reserpine has been accomplished, and one of four formulae for making tablets from the powdered drug, using tapioca and rice starch as additives, has proved satisfactory in a six-month aging test. - S.K.

268. WASUWAT, Sasithorn and DHAMA-UPAKORN, Prasarn. Preliminary investigation of pharmacologically active principles in Ipomoea pes-caprae (Linn.) Roth. (phak-bungtha-le). Bangkok, ASRCT, 1967, 13. (Rep. no.1 on Res. Proj. 17/8)

Preliminary laboratory investigation indicated that Ipomoea pes-caprae (Linn.) Roth. leaves contained some pharmacologically active principles. Attempts to isolate pure compounds were partially successful. The results of preliminary screening work were sufficient to warrant further investigations. - Authors.

269. WASUWAT, Sasithorn and DONSAAGUL, Sawat. Investigation of Thai Rauwolfia serpentina : analysis and formulation of tablets of the crude drug and extracted reserpine. วารสารเภสัชกรรรมสมาคมแห่งประเทศไทย (Journal of the Pharmaceutical Association of Thailand) 22(1), 1969 : 1-14.

Laboratory investigation confirmed that Thai rauwolfia normally sold in the market is Rauwolfia serpentina, some specimens readily meeting pharmaceutical standards. The yield of reserpine obtained from the extraction of Thai R. serpentina was improved by selecting the best available procedure and increasing the experimental batch size. A tablet formula of the extract reserpine proved to be satisfactory over the period of one year aging test. A tablet formula of the crude powdered drug proved to meet the pharmaceutical standards over the period of two year aging test. These findings support the starting of local production of rauwolfia preparations in Thailand and

if demand is sufficient lead to the cultivation of rauwolfia as a special crop. - Authors.

270. WASUWAT, Sasithorn; DHAMMA-UPAKORN, Prasan; ROJANA-BHODHI, Wannee; DISYABOOT, Pornsawan; WORACHIRAWANIT, Saranya; NANDHASRI, Pranee; NARKWICHEN, Orapin; DHEPSITHA, Patama; GAJASENI, Suchitra; SRICHAN, Siripen; KHUAN-MUENG, Somsakdi; PICHA, Porntipa and CHU-TIMATEWIN, Sopa. Study on anti-neoplastic property in vitro, of the extract of ratchadat, Brucea amarissima, (Lour.) Merr. Bangkok, TISTR, 1979, 17 p. (Rep. no.7 on Res. Proj. 17/10)

Study on the extraction of pharmacologically active principles from Brucea amarissima had been conducted at TISTR. One active substance indicated negative result in mutagenic test, and positive result in anti-neoplastic test by inhibiting the growth of some cancer cells in vitro. The ED₅₀ were approximately 30, 75, 4.5 and 17 g/ml in cancer cell cultures of KB, L 1210, Raji and Hela respectively. The LD₅₀ on albino mice was approximately 184 mg/kg body weight. Further investigation is in progress. - Authors.

271. WASUWAT, Sasithorn; DISYABOOT, Pornsawan; CHANTARA-SOMBOON, Prakongsiri; NANDHASRI, Pranee; THARAVANIJ, Savanat and NGAMWATANA, Wantana. Study on anti-amoebiasis property, in vitro, of the extracts of Brucea amarissima (Lour.) Merr. (Ratchadat). Bangkok, ASRCT, 1973, 14 p. (Rep. no.2 on Res. Proj. 17/10)

Laboratory investigation showed that extracts of the fruits of Brucea amarissima possess anti-amoebic property in vitro, against Entamoeba histolytica. One active fraction at 1.3 mg/ml concentration gave an amoebicidal effect equivalent to that of 0.7-0.8 mg/ml 2-dehydroemetine dihydrochloride injection (Roche). Preliminary study on acute toxicity of the active fraction on albino mice, was made; it was found that the LD₅₀ was 184.4 mg/kg body weight (mouse) compared with 59.82 mg/kg (mouse) for 2-dehydroemetine dihydrochloride. Another isolated fraction possesses high toxic property; its LD₅₀ was 7.1 mg/kg body weight (albino mouse) and its amoebicidal effect at 0.25 mg/ml concentration was equivalent to that of 2-dehydroemetine dihydrochloride at 0.8 mg/ml. The yield of active fraction was 0.075%, based on dried raw fruits. - Authors.

272. WASUWAT, S.; DISYABOOT, P.; CHANTARASOMBOON, P.; PANURAI, R. and SATRAVAHA, P. Study on antidysentery and antidiarrhea properties of extracts of Brucea amarissima. Bangkok, ASRCT, 1971, 13 p. (Rep. no.1 on Res. Proj. 17/10)

Laboratory investigation showed that extracts from the kernel of Brucea amarissima possess antibacterial action, in vitro, against Shigella shiga, Shigella flexneri, Shigella boydii, Salmonella lexington, Salmonella derby, Salmonella typhi type II, Vibrio cholera inaba and Vibrio cholera ogawa. Extracts from the pericarp do not possess antibacterial action against these test bacteria. The methylene chloride soluble fraction, derived from the methanol extract of Brucea amarissima kernel, had the highest antibacterial activity against Shigella shiga, in vitro, and the smallest LD₅₀ in albino mice. By TLC of the methylene chloride soluble fraction, several substances could be separated. Further study of the extracts is continuing. - Authors.

273. WERAWATTANAMETIN, Kittipong. The chemical constituents of the bark of Vitex glabrata, R. Br. (Verbenaceae) and Salix tetrasperma, Roxb. (Salicaceae). Master of Science (Organic Chemistry) Thesis. Bangkok, Mahidol University, 1972, 50 p.

Vitex glabrata, R. Br. The powdered bark of Vitex glabrata, R. Br. was investigated. β -Sitosterol was isolated from the petroleum extract and insect moulting hormone steroid-ecdysterone (β -ecdysone, crustecdysone, iso-inokosterone or 20-hydroxyecdysone)

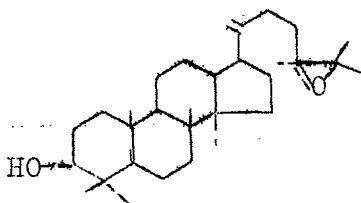
Salix tetrasperma, Roxb. the powdered bark of Salix tetrasperma, Roxb. was extracted with petroleum ether and yielded a triterpenefriedelin as a main product. - Author.

274. WIRASAN, Aphon. The active principles in Aglaia odorata. Master of Science Thesis. Bangkok, Chulalongkorn University, 1964, 41 p. (In Thai)

The post fractionated substance from dried Aglaia odorata leaves weighing 2,000 with petroleum

ether, was extracted by chromatography column and the following chemical compounds were obtained : 5.5 g. of crude oil, 3.7 g of wax 1.3 g of high molecular weight saturated alcohol, 1.5 g of triterpene (1.9% by weight from crude extract and 2 types of unidentified compounds, 0.2 g.)

The extracted triterpene was an unknown compound having a formula similar to dammaradienol named aglaiol. The analytical results on molecular formula and structural formula, based on comparisons of IR, UV, and NMR spectra from the derivatives of the substance with those of the derivative of dammaradienyl acetate, indicated that various spectra could be identical with the molecular formula of aglaiol as $C_{30}H_{50}O_2$ and with the structural formula whose characteristics are shown below :



- K.N.

275. WONGMANEE, Nantana. Alkaloids in Mawaeng-Kreua (mawaeng khrua) (Solanum sanitwongsei Craib.). Master of Science (Pharmacology) Thesis. Bangkok, Mahidol University, 1966, 28 p.

Fresh green mawaeng khrua berries were extracted with aqueous alcohol. The extract was divided into two portions A and B. The extract (portion A) was studied by thin layer chromatography; one alkaloidal spot or fraction was obtained. By paper chromatography, one alkaloidal and two carbohydrate spots were obtained. The R_F value of the alkaloid was 0.45 and those of the free carbohydrates were 0.19 and 0.38.

The extract (portion B) was studied by paper chromatography. Three alkaloidal spots were obtained; the R_F values of the three alkaloids were 0.07, 0.24 and 0.53.

The main alkaloid of $R_F = 0.07$ was eluted from the paper chromatography and its UV absorption spectrum in ethyl alcohol was recorded. - K.N.

276. WONGRATANASTIT, Thanomsi. สารคัดตายนเืองออกจากเมล็ดค-
สะปามอญ (Anti-tumor from Entada phaseoloides Merr.)
วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Warasarn Phesacha-
sarthara Mahidol University) 2(2), 1975 : 126-129.
(In Thai)

Report on the experimental method in extraction of saponin from the seed of Entada phaseoloides. This alkaloid was found to be anti-tumor activity with the rats. - R.K.

277. WONGRATANASTIT, Thanomsi. กระวานป่า (Amomum uliginosum
Koenig.) วารสารเภสัชศาสตร์ มหาวิทยาลัยมหิดล (Warasarn Phe-
chasarthara Mahidol University) 3(4), 1976 : 204-207.

Report on history, description, microscopy and medicinal uses. - R.K.

278. WONGSERIPIPATANA, Sumphan. อัลคาลอยด์จากเครืออีลีเหี้ยม
(Alkaloids from Uncaria salaccensis Bakh. f. nom pro-
vis) Master of Science (Pharmacy) Thesis. Bangkok,
Chulalongkorn University, 1978, 174 p.

By means of column chromatography, pentacyclic heteroyohimbines 3-isoajmalicine and 19-epi-3-isoajmalicine, and pentacyclic oxindoles mitraphylline and uncarine B were isolated from the leaves of Uncaria salaccensis Bakh. f. nom provis. The physical and chemical properties of these alkaloids were studied. - Author.

279. WUNGCHINDA, Sukit. Phytochemical investigation of the roots and seeds of Combratum quadrangulare Kurz (Combretaceae). Master of Science (Pharmacy) Thesis. Bangkok, Mahidol University, 1979, 104 p.

The plant Combretum quadrangulare (Combretaceae) is a source of firewood, while the seed is used as a remedy for worms in children and for the relief of muscle fatigue and pain. The decoction of the root and bark is taken for venereal diseases.

A preliminary study on the anthelmintic activity of C. quadrangulare revealed that the ethanolic extract of the roots was the most active when tested in vitro against earth worms. Other fractions found to possess anthelmintic activity were the ethanolic extract of the seeds as well as the ether extracts of both the seeds and the roots.

The crude ethanolic extract of the seeds was also found to possess antimicrobial activity, being most effective in inhibiting Staphylococcus aureus and effective to a lesser extent in inhibiting Shigella dysenteriae and Pseudomonas aeruginosa respectively, but was not effective against Bacillus subtilis, Escherichia coli or Salmonella typhi Bangkok.

The phytochemical investigation of the roots and the seeds resulted in the isolation of three pentacyclic triterpene carboxylic acids, tentatively identified as 3β , 6β , 18β -trihydroxy-urs-12-en-30-oic acid, 3,6-diketo-olean-12-en-28-oic and olean-12-en-28-oic acid. In addition, β -sitosterol, β -sitosteryl glucoside, two long chain alcohols and an amine were also isolated. - Author.

280. YATINUNTA, Boonthan. การสกัดสารอินทรีย์จากทับทิมเทศ (Extraction of organic compounds from the Tinospora crispa) Master. of Science (Pharmacy) Thesis. Bangkok, Chulalongkorn University, 1974, 37 p. (In Thai with Engl. summ.)

Dry powdered Tinospora crispa was extracted with several kinds of solvents; such as petroleum ether, isopropyl alcohol, chloroform, ethyl alcohol and ethyl acetate. The crude extract from petroleum ether was separated by column chromatography using alumina as an adsorbent, then eluted with petroleum ether, and mixture of benzene - petroleum ether of various proportions.

Comparison with the authentic samples by TLC., IR., m.p., m.m.p. and chemical properties gave the following results :

1. A saturated long chain aliphatic alcohol m.p. $80 - 81^{\circ}$, $C_{26}H_{54}O$ (0.76% by wt. of crude extract)

Extraction with other solvents yielded oily substances, sugars and glycosides. These could not be separated by column chromatography, since the majority of the products were absorbed by alumina.

Crude extract from isopropyl alcohol was hydrolysed by acid and when separated by column chromatography yielded the same compounds as the crude extract from petroleum ether. - Author.

281. YODHABANDU, Choompis. A pharmacopoeial study on "Puag Ha-ad" (2:4:3':5' tetrahydroxystilbene) from Artocarpus lakoocha Roxb. (Family Moraceae). Master of Science Thesis. Bangkok, University of Medical Sciences, 1960, 47 p.

The works previously reported on Puag Ha-ad and 2:4:3':5' tetrahydroxystilbene were reviewed. The methods of purification, properties and other specifications of Puag Ha-ad were studied experimentally. After a series of laboratory experiments, methods of identification and methods of assaying of purified Puag Ha-ad and its preparations were devised. The Pharmacopoeial monograph on purified Puag Ha-ad was formulated from the results obtained in various experiments. The activity of purified Puag Ha-ad to pig ascaris was tested. - Author.

282. YUPRAPHAT, T.; PACHALY, P. and ZYMALKOWSKI, F. Alkaloids from the Thai drug Krung Kha Mao (Menispermaceae): III. Isolation and identification of further bisbenzylisochinoline-alkaloids of the berbamine, resp. oxyacanthine-type. *Planta Medica* 25(4), 1974 : 315-324. (In Ger. with Ger. and Engl. summ.)

Beside the main alkaloid d,-tetrandrine, 5 other alkaloids were isolated from the Thai drug Krung Kha Mao and identified as d, l-tetrandrine, isotetrandrine, limacine, berbamine and homoaromoline. This confirms the suspicion that Krung Kha Mao is not derived from Cissampelos pareira, but from Cyclea barbata Miers.-- *Biol. Abstr.* 58, 1974.

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