

REFERENCES

- Adeniyi, B. A.; Fong, H. H. S.; Pezzuto, J. M.; Luyengi, L.; and Odelola, H. A. Antibacterial Activity of Diospyrin, Isodiospyrin and Bisidiospyrin from the Root of *Diospyros piscatorial* (Gurke). Phytother. Res. 14 (2000) : 112-117.
- Ageta, H.; Arai, Y.; Suzuki, H.; Kiyotani, T.; and Kitabayashi, M. NMR Spectra of Triterpenoids. III. Oleanenes and Migrated Oleanenes. Chem. Pharm. Bull. 43 (1995) : 198-203.
- Alake, L. B. Antibacterial activity of Diosquinone Isolated from *Diospyros tricolor*. Planta Med. 60 (1994) : 447.
- Alves, E. A. C.; and Costa, M. A. C. Batocanone, A New Naphthoquinonylnaphthoquinone Epoxide. Tetrahedron Lett. 21 (1980) : 2459-2460.
- Andriamasy, J.; and Fouraste, I. Triterpenes from *Diospyros kaki* L. Presence of α -amyrin and Betulin in the Stem Bark. Trav. Soc. Pharm. Montpellier. 38 (1978) : 77-80. Through Chemical Abstracts 89: 12037t.
- Balza, F.; Abramowski, Z.; Towers, G. H. N.; and Wiriyaichitra, P. Identification of Proanthocyanidin Polymers as the Piscidal Constituents of *Mammea Siamensis*, *Polygonum stagninum* and *Diospyros diepenhorstii*. Phytochemistry 28 (1989) : 1827-1830.
- Batta, A. K.; and Rangaswami, S. Angiospermae Oicotyledonae Amarantaceae, etc. Crystalline Chemical Components of Some Vegetable Drugs. Phytochemistry 12 (1973) : 214.
- Bhakuni, D. S.; Satish, S.; Shukla, Y. N.; and Tandon, J. S. Chemical Constituents of *Diospyros buxifolia*, *D. tomentosa*, *D. ferra*, *D. lotus*, *Rhus parriflora*, *Polygonum recumbens*, *Balanites aegyptiaca* and *Pyrus pashia*. Phytochemistry 10 (1971) : 2829.
- Bhaumik, T.; Dey, A. K.; Das, P. C.; Mukhopadhyay, A. K.; and Chatterjee, A. Triterpenes of *Diospyros peregrina* Gurke : Partial of Olean-9 (11), 12-diene-3-one & Ursan-9(11), 12-diene-3-one (Marsformosanone). Indian J. Chem. 20B (1981) : 664-668.
- Bouquet, A. Medicinal plants of Congo-Brazzaville. Trav. Doc. ORSTROM. 13. (1972) : 112. Through Chemical Abstracts 78 : 121363.
- Brown, A. G.; and Thomson, R. H. Ebenaceae Extractives. Part II. Naphthaldehydes from *Diospyros ebenum* Koen. J. Chem Soc. (1965) : 4292-4295.

- Chandler, R. F.; and Hooper, S. N. Friedelin and Associated Triterpenoids. Phytochemistry 18 (1979) : 711-724.
- Chang, C. I.; and Kuo, Y. H. Three New Lupane-Type Triterpenes from *Diospyros maritima*. Chem. Pharm. Bull. 46 (1998) : 1627-1629.
- Chang, C. I.; and Kuo, Y. H. Two New Lupane-Type Triterpenes from *Diospyros maritima*. J. Nat. Prod. 62 (1999): 309-310.
- Chen, C. C.; Yu, H. J.; Ou, J. C.; and Pan, T. M. Constituents of Heartwood of *Diospyros eriantha*. J. Chin. Chem. Soc. 41 (1994) : 195-198.
- Chen, C. C.; Yu, H. J.; and Huang, Y. L. The Constituents of the Bark of *Diospyros eriantha*. Zhonghua Yaoxue Zazhi. 44 (1992) : 229-233. Through Chemical Abstracts 117 : 188243t.
- Chen, H. C.; Lin, Y. M.; Shih, T. S.; and Chen, F. C. Constituents of the Heartwood of *Morris persimmon* (II) *D. morrisiana*. Tai-wan K' O Hsueh. 41 (1987) : 46 Through Chemical Abstracts 110 (1989) : 151268j.
- Chowdhury, A. R. Chemical investigation on *Diospyros melanoxylon*. Labdev. Part B. 10 (1973) : 168-169. Through Chemical Abstracts 80 : 12516n.
- Costa, M. A. C.; Alves, A. C.; Seabra, R. M.; and Andrade, P. B. Naphthoquinones of *Diospyros chamaethamnus*. Planta Med. 64 (1998) : 391-391.
- Dahlgren, R.; Rosendal-Jensen, S.; and Nielsen, B. J. Phytochemistry and Angiosperm Phylogeny . Praeger, New York. 1981, pp. 149-203.
- Desai, H. K.; Gawad, D. H.; Govindachari, T. R.; Joshi, B. S.; Kamat, V. N.; Modi, J. D.; Mohamed, P. A.; Parthasarathy, P. C.; Patankar, S. J.; Sidhye, A. R.; and Viswanathan, N. Indian J. Chem. 8 (1970) : 851.
- Dinda, B.; Hajra, A. K.; Das, S. K.; Chel, G.; Chakraborty, R.; and Ranu, B. C. Reactions On Naturally-Occurring Triterpene 1. Indian J. Chem. B 34 (1995) : 624-628.
- Dominguez, X. A.; Cano, R.; Franco, G. R.; Gonzalez, A.; Pugliese, O.; Dominguez, M. A.; and Sanchez, G. A.. Chemical Study on the Roots and Barks of *Diospyros texana*, *Diospyros ebenaster* and *Diospyros palmeri*. Rev. Latinoam. Quim. 10 (1979) 50-53. Through Chemical Abstracts 91 : 120372y.
- Dutta, P. K.; Dutta, N. L.; and Chakrarti, R. N. Sterols and Triterpenes of *Diospyros montana*. Phytochemistry 11 (1972) : 1180.
- Ferreira, M. A.; Costa, M. A. C.; and Alves, E. A. C. Phytochemistry 11 (1972) : 2352.
- Gafner, F.; and Rodriguez, E. Biological Chemistry of Molluscicidal and Cytotoxic Plants Constituents. Revista Latino-americana de Quimica. 20 (1988) : 30. Through Chemical Abstracts 111 : 74815b.

- Gafner, F.; Chapuis, J. C.; Msonthi, J. D.; and Hostettmann, K. Cytotoxic Naphthoquinones, Molluscicidal Saponins and Flavonols from *Diospyros zombensis*. Phytochemistry 26 (1987) : 2501-2503.
- Harper, S. K.; Kemp, A. D.; and Tannock, J. Methoxynaphthaldehyde as Constituents of the Heartwood of *Diospyros quiloensis* and Their Synthesis by the Stobbe Condensation. J. Chem. Soc. C. 4 (1970) : 626-636.
- Hayek, E. W. H.; Jordis, U.; Moche, W.; and Sauter, F. A Bicentennial of Betulin. Phytochemistry 28 (1989) : 2229-2242.
- Herath, W. H. M. W.; Rajaskera, N. D.; Sultanbawa, M. V. S.; Wannigama, G. P.; and Balasubramaniam, S.. Triterpenoid, Coumarin and Quinone Constituents of Eleven *Diospyros* species (Ebenaceae). Phytochemistry 17 (1978). 1007-1009.
- Higa, M. A New Binaphthoquinone from *Diospyros maritima* Blume. Chem. Pharm. Bull. 36 (1988) : 3234-3236.
- Higa, M.; Ogihara, K.; and Yogi, S. Bioactive Naphthoquinone Derivatives from *Diospyros maritima* Blume. Chem. Pharm. Bull. 46 (1998) : 1189-1193.
- Jain, N.; and Yadava, R. Peregrinol, A Lupane Type Triterpene from the Fruits of *Diospyros peregrina*. Phytochemistry 35 (1994) : 1070-1072.
- Jeffreys, J. A. D.; and Zakaria, M. B. A New Class of Natural Product : Homologues of Juglone Bearing 4-Hydroxy-5-Methyl-Coumarin-3-yl Units from *Diospyros* Species. Tetrahedron Lett. 24 (1983) : 1085-1088.
- Jeffreys, J. A. D. ; Zakaria, M. B.; and Waterman, P. G. 3'-Methoxydiospyrin , A 7-Methyljuglone Dimer from *Diospyros mannii*. Phytochemistry. 22 (1983) : 1832-1833.
- Kapil, R. S.; and Dhar, M. M. Chemical Constituents of *Diospyros montana* I. Isolation of Diospyrin, A New Binaphthyl Derivative. J. Sci. Ind. Res. 20B (1961) : 498-500.
- Khan, M. R.; and Timi, D. Costituents of *Diospyros lolin*, *D. maritima* and *D. novoguineensis*. Fitoterapia 70 (1999) : 194-196.
- Khan, M. R; Kishimba, M. A.; and Locksley, H. Extractive from Ebenaceae : Constituents of the Root and Stem Barks of *Diospyros verrucosa*. Planta Med. 53 (1987) : 498-499.
- Khan, M. R.; Kishimba, M. A.; and Locksley, H. Naphthoquinones from the Root and Stem Barks of *Diospyros usambarensis*. Planta Med. 55 (1989) : 581.
- Khan, M. R.; Nkunya, M. H. H.; and Wevers, H.. Triterpenoids from Leaves of *Diospyros* Species. Phytochemistry 60 (1973) : 380-381.

- Khan, M. R.; Nkunya, M. H. H.; and Wevers, H. Triterpenoids from Leaves of *Diospyros* Species. Planta Med. 38 (1980) : 380-381.
- Khan, R. M.; and Rwekika, E. A Binaphthoquinone from *Diospyros greeniwayi*. Phytochemistry 49 (1998) : 2501-2503.
- Khan, R. M.; and Rwekika, E. 6'', 8'-Bisdiosquinone from *Diospyros mafiensis*. Phytochemistry 50 (1999) : 143-146.
- Kirimer, N.; Zeynep, T.; Baser, K. H. C.; and Ipek, C. Antispasmodic and Spasmogenic Effects of *Scolymus hispanicus* and Taraxasteryl Acetate on Isolated Ileum Preparations. Planta Med. 63 (1997) : 556-558.
- Konoshima, T.; Takasaki, M.; Kozuka, M.; and Tokuda, H. Studies on Inhibitors of Skin-tumor Promotion, I. Inhibitory Effects of Triterpenes from *Euptelea Polyander* on Epstein-Barr Virus Activation. J. Nat. Prod. 50 (1987) : 1167.
- Kuo, Y. H.; and Chang, C. I. Six New Compounds from the Heartwood of *Diospyros maritima*. Phytochemistry 48 (2000) : 1211-1214.
- Kuo, Y. H.; Chang, C. I.; Kuo, Y. H.; and Huang, S. L. Three New Naphthoquinones from the Stem of *Diospyros maritima* Blume. J. Chin. Chem. Soc. 45 (1998) : 111-114.
- Kuo, Y. H.; Chang, C. I.; Kuo, Y. H.; and Huang, S. L. Three New Naphthoquinones from the Stem of *Diospyros maritima* Blume. J. Chin. Chem. Soc. 45 (1998a) : 111-114.
- Kuo, Y. H.; Chang, C. I.; and Kuo, Y. H. A Novel Trinorlupane, Diospyrolide, from *Diospyros maritima*. Chem. Pharm. Bull. 45 (1997a) : 1221-1222.
- Kuo, Y. H.; Chang, C. I.; and Kuo, Y. H. Triterpenes from *Diospyros maritima*. Phytochemistry 46 (1997b) : 1135-1137.
- Kuo, Y. H.; Chang, C. I.; Li, S. Y.; Chou, C. J.; Chen, C. F.; Kuo, Y. H.; and Lee, K. H. Cytotoxic Constituents from the Stems of *Diospyros maritima*. Planta Med. 63 (1997c) : 363-365.
- Kuo, Y. H.; Huang, S. L.; and Chang, C. I. A Phenolic and an Aliphatic Lactone from *Diospyros maritima*. Phytochemistry 49 (1998b) : 2505-2507.
- Kuroyanagi, M.; Yoshihira, K.; and Natori, S. Naphthoquinone Derivatives from the Ebenaceae. III. Shinanolone from *Diospyros japonica* Sieb. Chem. Pharm. Bull. 19 (1971) : 2314-2317.
- Li, H. L.; Lu, R.; and Zhong, Y. Chemical Constituents of *Diospyros siderophylla*. Huaxue Xuebao. 39 (1981) : 815-817. Through Chemical Abstracts. 97 : 88748m.
- Li, X. C.; van der Bijl, P.; and Wu, C. D. Binaphthalenone Glycosides from African Chewing Sticks, *Diospyros lycioides*. J. Nat. Prod. 61 (1998) : 817-820.

- Likhitwitayawuid, K.; Dej-adisai, S.; and Jongbunprasert, V. Antimalarials from *Stephania Venosa*, *Prismatomeris sessiliflora*, *Diospyros montana* and *Murraya siamensis*. Planta Med. 65 (1999) : 754-756.
- Lillie, T. J.; Musgrave, O. C. ; and Skoyles, D. Ebenaceae Extractives. Part V. New Diospyrin Derivatives from *Diospyros montana* Roxb. J. Chem. Soc., Perkin Trans. 20 (1976a) : 2155-2161.
- Lillie, T. J.; Musgrave, O. C.; and Skoyles, D. Ebenaceae Extractives. Part VI. Ehretione, a Bisnaphthoquinone derived from Plumbagin and 7-Methyljuglone. J. Chem. Soc., Perkin Trans. 20 (1976b) : 2546.
- Lin, L. C.; Chou, C. J.; and Chen, C. F. Triterpene of *Diospyros kaki*. Chung-hua Yoa Husea Tsa Chih 40 (1988) : 195. Through Chemical Abstracts. 111 : 20839
- Lin, S. R. Studies on the Constituents of the Fruits of *Diospyros discolor* Willd. T'ai-wan Yao Hsuch Tsa Chih. 30 (1978) : 132-135. Through Chemical Abstracts. 92 : 107356x.
- Maiti, B. C.; and Musgrave, O. C. Ebenaceae Extractives. Part IX. New Naphthoquinones and Binaphthylquinones from Macassar Ebony. J. Chem. Soc., Perkin Trans. 30(1986) : 675-681.
- Maiti, B. C.; Musgrave, O. C.; and Skoyles, D. Total Syntheses of Diosindigo B, Mamegakinone, Biramentaceone, and Rotundiquinone. J. Chem. Soc., Perkin Trans. 20 (1976) : 244-245.
- Mallavadhani, U. V.; Panda, A. K.; and Rao, Y. R. Pharmacology and Chemotaxonomy of *Diospyros*. Phytochemistry. 49 (1998) : 901-951.
- Manitto, P. Biosynthesis of Natural Products. New York. Ellis Horwood . 1981, p. 266.
- Mann, J.; Davidson, R. S.; Hobbs, J. B.; Banthorpe, D. V.; and Harborne, J. B. Natural Products : Their Chemistry and Biological Significance. London : Academic Press. 1994, p. 381.
- Maria, S. R.; Olivera, D.; Dueinos, C.; and Alves, E. A. C. Polycyclic Compounds of *Diospyros kirkii*. Rev. Port. Farm. 29 (1979) : 84-89. Through Chemical Abstracts 92 : 311999.
- Marston, A.; Msonthi, J. D.; and Hostettmann, K. Naphthoquinones of *Diospyros usambarensis* , Their Molluscicidal and Fungicidal Acitivities. Planta Med. 50 (1984) : 279-280.
- Matsuura, S.; and Iinuma, M. Studies on the Constituents of Useful Plants IV. The Constituents of Calyx of *Diospyros kaki*. Yakugaku Zasshi. 97 (1977) : 452-455. Through Chemical Abstracts 87 : 2409k.

- Matsuura, S.; Asano, K.; Ohba, K.; and Misano, M. Components of the Leaves of *Diospyros kaki*. Yakugaku Zasshi. 91 (1971) : 905-906. Through Chemical Abstracts 75 : 126550w.
- Miles, D. H.; Kokpol, U.; Zalkow, L. H.; Steindel, St. J.; and Nabors, J. B. Tumor Inhibitors I : Preliminary Investigation of Antitumor Activity of *Sarracenia flava*. J. Pharm. Sci. 63 (1974) : 613.
- Misra, G.; Nigam, S. K.; and Mitra, C. R. Steroids and Triterpenoids of *Diospyros montana*. Phytochemistry 11 (1972) : 1508-1509.
- Misra, P. S.; Misra, G.; Nigam, S. K.; and Mitra, C. R. Constituents of *Diospyros peregrina* Fruit and Seed. Phytochemistry 10 (1971) : 904-905.
- Musgrave, O. C.; and Skoyles, D. Ebenaceae Extractives. Part IV. Diosindigo A, A Blue Pigment from Several *Diospyros* species. J. Chem. Soc., Perkin Trans. (1974) : 1128-1131.
- Narayan, G. K. A. S. S.; Row, L. R.; and Satyanarayana, P. Chemical Examination of *Diospyros* Species. Curr. Sci. 47 (1978) : 345.
- Ogunkoya, L. Application of Mass Spectrometry in Structural Problems in Triterpenes Phytochemistry. 20 (1981) : 121-126.
- Okuyama, E.; Homma, M.; Satoh, Y.; Fujimoto, H.; Ishibashi, M.; Yamazaki, M.; Satake, M.; and Ghazali, A. B. A. Monoamine Oxidase Inhibitory Naphthoquinone and/or Naphthalene Dimers from Lemuni Hitam (*Diospyros* sp.), A Malaysian Herbal Medicine. Chem. Pharm. Bull. 47 (1999) : 1473-1476.
- Pardhasaradhi, M.; and Krishnakumari, L. Tetrahydrodiospyrin : A Reduced Binaphthoquinone from the Bark of *Diospyros montana*. Phytochemistry 18 (1979) : 684-685.
- Pardhasaradhi, M.; and Sidhu, G. S. β -Dihydrodiospyrin, the first reduced binaphthoquinone. Tetrahedron Lett. 41 (1972) : 4201-4204.
- Phengklai, C. "Ebenaceae of Thailand," Thai Forest Bulletin Botany No. 11. Forest Herbarium. (Bangkok, Royal Forest Department, 1978), pp. 1-103.
- Raj, K. P. S.; and Agrawal, Y. K. Studies on Fruits of *Diospyros montana* Roxb. Pol. J. Chem. 53 (1979) : 735-736.
- Ravishankara, M. N.; Shrivastava, N.; Jayathirtha, M. G.; Padh, H.; and Rajani, M. Sensitive High-performance Thin-Layer Chromatographic Method for the Estimation of Diospyrin, a Tumour Inhibitory Agent from the Stem Bark of *Diospyros montana* Roxb. J. Chromatog. B. 744 (2000) : 257-262.

- Recio, M. D. C.; Giner, R. M.; Manez, S.; Gueho, J.; Julien, H. R.; Hostettmann, K.; and Rios, J. L. Investigations on the Steroidal Anti-Inflammatory Activity of Triterpenoids from *Diospyros leucomelas*. Planta Med. 61 (1995) : 9-12.
- Richomme, P.; Papillon, B.; Cabalion, P.; and Bruneton, J. Naphthoquinonen de *Diospyros samoensis*. Pharm. Acta. Helv. 66 (1991) : 88-89.
- Sankaram, A. V. B. and Reddy, V. V. N. Structure of Ebenone, A Possible Biogenetic Precursor of Elliptinone, from *Diospyros ebenum*. Phytochemistry 23 (1984) : 2039-2042..
- Sankaram, A. V. B.; and Sidhu, G. S. A New Naphthaldehyde from the Heartwood of *Diospyros melanoxylon*. Phytochemistry. 10 (1971) : 458-459.
- Sankaram, A. V. B.; Reddy, V. V. N.; and Sidhu, G. S. A Pentacyclic Quinone and Diosindigo B from the Heartwood of *Diospyros melanoxylon*. Phytochemistry 20 (1981) : 1093-1096.
- Sankaram, A. V. B.; Reddy, V. V. N.; and Marthandamurthi, M. ¹³C-NMR Spectra of some Naturally Occurring Binaphthoquinones and Related Compounds. Phytochemistry 25 (1986) : 2867-2871.
- Sharma, K.; and Gupta, R. K. Triterpenoids from *Diospyros ebenum*. Fitoterapia 56 (1985) : 366.
- Sheth, K.; Bianchi, E.; Wiedhopf, R.; and Cole, J. R. Antitumor Agents from *Alnus oregona* (Betulaceae). J. Pharm. Sci. 62 (1973) : 139.
- Sholichin, M.; Yamasaki, K.; Kasai, R.; and Tanaka, O. ¹³C Nuclear Magnetic Resonance of Lupane-Type Triterpenes, Lupeol, Betulin and Betulinic Acid. Chem. Pharm. Bull. 28 (1980) : 1006-1008.
- Sidhu, G. S.; and Prasad, K. K. Structure of Two Oxygenated Naphthalenes from *Diospyros chloroxylon*. Indian J. Chem. 9 (1971) : 767-769.
- Sutthivaiyakit, S.; Pakakatsama, P.; Kraus, W. ; and Vogler, B. Constituents of *Diospyros rhodocalyx*. Planta Med. 61 (1995) : 295.
- Tezuka, M.; Kuroyanagi, M.; Yoshihira, K.; and Natori, S. Naphthoquinone Derivatives from the Ebenaceae. IV. Naphthoquinone Derivatives from *Diospyros kaki* Thunb. and *D. kaki* Thunb. var. *sylvestris* Makino. Chem. Pharm. Bull. 20 (1972) : 2029-2035.
- Tezuka, M.; Takahashi, C.; Kuroyanagi, M.; Satake, M.; Yoshihira, K.; and Natori, S. New Naphthoquinones from *Diospyros*. Phytochemistry 12 (1973) : 175-183.
- Thomson, R. H. Naturally Occurring Quinones. 2nd edition New York : Academic Press. 1971, pp. 2, 5, 13-15.

- Van Der Vijver L. M.; and Gerritsma, K. W. Naphthoquinones of *Euclea* and *Diospyros* Species. Phytochemistry 13 (1974) : 2322-2323.
- Waterman, P. G.; and Mbi, C. N. The Sterols and Dimeric Naphthoquinones of the Barks of Three West Africa *Diospyros* Species. Planta Med. 37 (1979) : 241-246.
- Herath, W. H. M. W. ; Rajaskera, N. D. S.; Sultanbawa, M. U. S.; Wannigama, G. P.; and Balasubramanium, S. Triterpenoid, Coumarin and Quinone Constituents of Eleven *Diospyros* Species (Ebenaceae). Phytochemistry 25 (1978) : 1007-1009.
- Yan, D. Z.; Kuo, Y. H.; Lee, T. J.; Shih, T. S.; Chen, C. H.; McPhail, D. R.; McPhail, A. T.; and Lee, K. H. Cytotoxic Components of *Diospyros morrisiana*. Phytochemistry 28 (1989) : 1541-1543.
- Yoshihira, K.; Tezuka, M.; and Natori, S. Naphthoquinone Derivatives from Ebenaceae. II. Isodiospyrin, Bisidiospyrin, and Mamegakinone from *Diospyros lotus* L. and *D. morrisiana* Hance. Chem. Pharm. Bull. 19 (1971a) : 2308-2313.
- Yoshihira, K.; Tezuka, M.; and Kanchanapee, P. Naphthoquinone Derivatives from the Ebenaceae. I. Diospyrol and the Related Naphthoquinones from *Diospyros mollis* Griff. Chem. Pharm. Bull. 19 (1971b) : 2271-2277.
- Yoshimoto, M.; Hiraoka, T.; Kuwano, H.; and Kishida, Y. Four New Naphthoquinone Derivatives from *Diospyros* spp. Chem. Pharm. Bull. 19 (1971) : 851-854.
- Zafar, R.; Singh, V.; and Khan, M. S. Y. Chemical Examination of the Leaves of *Diospyros montana* Roxb. Indian Drugs. 28 (1991) : 432-433.
- Zakaria, M. B.; Jeffreys, J. A. D.; Waterman, P. G.; and Zhong, S. M. Naphthoquinones and Triterpenes from Some Asian *Diospyros* Species. Phytochemistry 23 (1984) : 1481-1484.
- Zhong, S.; and Feng, S. Naphthoquinones and A Triterpene from the Stem of *Diospyros kaki* var. *sylvestris*. Zhongguo Yaoke Daxue Xuebao. 18 (1987) : 279-280.
Through Chemical Abstracts 108 : 109555j.
- Zhong, S. M.; Waterman, P. G.; and Jeffreys, J. A. D. Naphthoquinones and Triterpenes from African *Diospyros* Species. Phytochemistry 23 (1984) : 1067-1072.

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Publications

1. Aunphak, J. ; Sriubolmas, N. ; De-Eknamkul, W. ; and Ruangrungsi, N. Essential Oil of *Piper samentosum* : Chemical Composition and Antimicrobial Activity. 23rd Congress on Science and Technology of Thailand ChiangMai 1997.
2. Aunphak, J. ; Sriubolmas, N. ; De-Eknamkul, W. ; and Ruangrungsi, N. Chemical Composition and Antimicrobial Activity of Essential Oil from *Curcuma sessilis*. The 14th Annual Research Meeting in Pharmaceutical Sciences Faculty of Pharmaceutical Sciences Chulalongkorn University 1997.
3. Aunphak, J. ; Ruangrungsi, N. ; and De-Eknamkul, W. Chemical Composition of Essential Oils from the Leaves of *Piper muricatum* Bl. and *Piper ribesoides* Wall. 24th Congress on Science and Technology of Thailand, Bangkok 1998.
4. Aunphak, J. ; Sriubolmas, N. ; De-Eknamkul, W. ; and Ruangrungsi, N. Chemical Composition and Antimicrobial Activity of Essential Oil from the Young Stem and Rhizome of *Alpinia nigra* (Gaertn.) B.L.Burt. UNESCO Seminar on the Chemistry of Natural Products Thailand Bangkok 1998.
5. Aunphak, J. ; Sriubolmas, N. ; De-Eknamkul, W. ; and Ruangrungsi, N. Volatile Constituents of *Heracleum siamicum* and Antimicrobial Activity. The Fourth Joint Seminar, NRCT-JSPS Core University System in Pharmaceutical Sciences, Hat Yai, Thailand, 1998.
6. Aunphak, J. ; Sriubolmas, N. ; De-Eknamkul, W. ; and Ruangrungsi, N. Chemical Composition and Antimicrobial Activity of Essential Oil from the Fruits of *Amomum krervanh* and *A. uliginosum* Thai J. Pharm. Sci., 1999, Vol.22, No.3
7. Lohakachornpan, P. ; Aunphak, J. ; and Ruangrungsi, N. Chemical Composition of Essential Oil from *Callistemon lanceolatus*. 25th Congress on Science and Technology of Thailand, Pitsanuloke, 1999.