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HUNSA PRAWAT : STUDIES OF BIOACTIVE PLANTS : INVESTIGATIONS OF *DERRIS RETICULATA, VERNONIA FASTIGIATA, CALOPHYLLUM INOPHYLLUM* AND *MAMMEA SIAMENSIS*. THESIS ADVISORS: SOMSAK RUCHIRAWAT Ph.D., AMONSRI CHERMPRAPAI Ph.D., SUNANTA VIBULJAN Ph.D., SUPALUK PRACHAYASITTIKUL Ph.D., APICHART SUKSAMRARN Ph.D., 199 p. ISBN 974-661-685-4

Two new pyranoflavanones, 2"',3"'-epoxylupinifolin and dereticulatin, together with the known flavonoid lupinifolin, were identified from the stems of *Derris reticulata*. The structures of these compounds were studied by use of NMR spectral data including the use of 2D NMR technology and chemical transformations. All of the isolates showed cytotoxic activity in the P-388 cell line.

The aerial parts of *Vernonia fastigiata* afforded five glaucolides, 2α,3α-epoxyprevernocistifolide-8-*O*-methacrylate, prevernocistifolide-8-*O*-methcrylate, prevernocistifolide-8-*O*-isobutyrate, prevernocistifolide-8-*O*-angelate and 14-*O*-acetylprevernocistifolide-8-*O*-methacrylate. All of the isolates showed antibacterial action specific to *Bacillus subtilis* at the MIC value of 5 μg, except for prevernocistifolide-8-*O*-angelate which was shown to have MIC value of 10 μg. The structures of these glaucolides were studied by use of NMR spectral data including the use of 2D NMR technology and chemical transformations.

Six 4-phenylcoumarins, 12-methoxyinophyllum D, calophyllolide, inophyllum C, inophyllum E, calophyllic acid, isocalophyllic acid, and two flavonoid glycosides, kaempferol-3-*O*-α-L-rhamnoside and quercetin-3-*O*-α-L-rhamnoside were isolated from the leaves of *Calophyllum inophyllum*. In addition, a hexane extract of the dried stem of *C. inophyllum* was the source of inophyllum A. Furthermore, the dichloromethane extract afforded 1,2-dimethoxyxanthone, 1,7-dihydroxyxanthone, 2-hydroxy-1-methoxyxanthone, 3-hydroxy-4-methoxy-xanthone, 1,2,8-trimethoxyxanthone, and 1,3,5-trihydroxy-2-methoxyxantone. Structure elucidation of these compounds was accomplished by the use of 2D NMR technology and compared with data reported in the literature.

The hexane extract of the flower of *Mammea siamensis* afforded two novel compounds, mammea E/BC cyclo D and mammea E/BA cyclo D, and two known compounds, mammea B/AC cyclo D and mammea A/AC cyclo D. Their structures were elucidated by spectroscopic methods. The absolute stereochemistry of mammea E/BC cyclo D was established as [13*S*] using the modified Mosher's method.