

**ISOLATION AND IDENTIFICATION OF
NATURAL COMPOUNDS FROM SHINMATAUNG
THANAKHA (*Hesperethusa crenulata* Roxb.) AND
ANTIMICROBIAL ACTIVITY STUDY OF
DIFFERENT SOLVENT EXTRACTS AND THE
ISOLATED COMPOUNDS**

PhD(DISSERTATION)

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ABSTRACT

Thanakha is mainly used as a traditional cosmetic applied by smearing on Myanmar women and children's faces and bodies which is a hallmark of Myanmar culture for many centuries. Thanakha plays not only as for adorning of women and children's beauty but also in economy, religion, utensils and medicine in Myanmar society since early times.

The dried powder samples (stem bark and heartwood) of Shinmataung Thanakha were extracted with petroleum ether in Soxhlet extractor. Isolation and purification of the petroleum ether extract were done by chromatographic method and recrystallization. From the stem bark, 0.0072% of lupenone and 0.0021% of lupeol have been isolated, and nimbosterol (0.0004%) was isolated from heartwood. The identification of these compounds were carried out by UV, FTIR, MS spectroscopic measurements and elemental analysis data.

Antimicrobial activity studies of different solvent extracts and isolated compounds from Shinmataung Thanakha were done by agar well diffusion method. Polar and non-polar extracts of stem bark, heartwood, roots and isolated compounds were tested on 6 microorganisms. Crude extracts and isolated lupenone, lupeol, and nimbosterol were found to show antimicrobial activity.

The molecular mechanics calculation on the isolated compounds were carried out by using ChemOffice software. The calculated properties include various types of energies, polarizability, bond lengths, bond angles, torsion angles, cosmo solvation properties, partial charges and dipole moments. The active sites of the compounds were also deduced.

Key words: Thanakha (*Hesperethusa crenulata*), lupenone, lupeol, nimbosterol, antimicrobial activity, molecular mechanics Q1.MS, SciFinder Scholar software.