CHEMISTRY OF FIVE LICHENS OF SRI LANKA

AND

SEQUESTRATION OF LICHEN COMPOUNDS BY A LYCAENID BUTTERFLY *TALICADA NYSEUS*

A THESIS PRESENTED

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ABSTRACT

CHEMISTRY OF FIVE LICHENS OF SRI LANKA AND SEQUESTRATION OF LICHEN COMPOUNDS BY A LYCAENID BUTTERFLY *TALICADA NYSEUS*

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The thesis is in two parts. Part **I** deals with the chemistry of five lichens: *Pyxine consocians*, *Usnea* sp., *Heterodermia leucomelos*, *Lepraria atrotomentosa* and *Leproloma sipmanianum* from Sri Lanka. *Pyxine consocians*, *Usnea* sp., *Heterodermia leucomelos* are common macrolichens from the montane zone while *Lepraria atrotomentosa* (new species) and *Leproloma sipmanianum* (new record) are two lepraroid lichens. It describes the isolation and identification of a large number of compounds from five lichens and also discusses the results of the mosquito larvicidal assay against the second instar larvae of *Aedes aegypti*. Of the 16 or so natural products isolated from the extracts and sometimes the powder of the lichens, three were new compounds.

The compounds, namely cabraleadiol monoacetate **55**, 4-*O*-methylcryptochlorophaeic acid **45** and lichexanthone **57** (from *Pyxine consocians*), methyl ether of stictic acid **61** (from *Usnea* sp.) and 3, 6-dimethyl-2-hydroxy-4-methoxybenzoic acid **64** (from *Heterodermia leucomelos* and *Leproloma sipmanianum*) showed moderate activity against the second instar larvae of *Aedes aegypti*.

Part **II** of the thesis deals with the sequestration of the compounds isolated from the lichen *Leproloma sipmanianum* by a lycaenid butterfly *Talicada nyseus* and also describes the investigations regarding the stage of entry of lichen compounds into the life cycle of the butterfly and also its life history studies on *Bryophyllum calycinum* (host plant) and *B. laciniata* (a related species).