

ABSTRACT

Characterization of the Secondary Metabolites of the Lamiaceae Family: *Hyptis*, *Leonotis* and *Leonurus*

Dionne Michelle Boalino

This work is divided into six chapters. Chapter One is an examination of the chemical literature reported on the genus *Hyptis* (Lamiaceae), in particular the novel secondary metabolites isolated from the various species.

Chapter Two is a chemical investigation of the natural products of the aerial parts and roots of the Barbadian herb *Hyptis pectinata*. Seven secondary metabolites are reported here, the isolation of two relatively common triterpenoids-betulinic acid (compound A) and ursolic acid (compound B), in addition to a dicarboxylic acid (compound C). Three new 6-substituted α -pyrones (compounds D, E, G) in addition to a novel furanone (compound F) were also identified.

Chapter Three is a literature review of the species *Leonotis nepetaefolia* (Lamiaceae), and in particular the diterpenes and iridoids reported from the species in the last thirty years.

Chapter Four is an investigation of metabolites of the herb *Leonotis nepetaefolia*. Two compounds are reported, a novel labdane diterpene (compound H) and a steryl glucoside (compound I).

Chapter Five is a chemical review of the literature of the genus *Leonurus* (Lamiaceae), in particular the labdane diterpenoids are examined.

Chapter Six is a chemical investigation of the prefuranoditerpenoids of *Leonurus sibiricus*. Three novel prefuranic labdane diterpenes compounds (J-L) are reported, in addition to six previously unreported, stereochemically related spirocyclic diterpenes compounds (M-R). A flavone is also investigated (compound S).

Keywords: Dionne Michelle Boalino, herbs, *Hyptis*, *Hyptis pectinata*, *Leonotis*, *Leonotis nepetaefolia*, *Leonurus*, *Leonurus sibiricus*, Lamiaceae, secondary metabolites, pyrones, furanone, diterpenes.