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

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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).

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