PHYTOCHEMICAL AND BIOLOGICAL INVESTIGATION OF ENDEMIC MEMBERS OF JAMAICAN CANELLACEAE AND PIPERACEAE

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ABSTRACT

Part I of this thesis outlines the isolation, structural elucidation and bioactivity of compounds from *Cinnamodendron corticosum*, a member of the Canellaceae family. A review of drimane sesquiterpenoids, the common metabolites of the Canellaceae, constitutes chapter 1. Isolation, accomplished by chromatography, and characterization, aided by 2D-NMR experiments, of five compounds are discussed in chapter 2. These include four drimanes and the new stereoisomer of a bisabolane sesquiterpene, compound E (**55**), which represents the first of its class from the family. Chapter 3 examines the bioactivity of the isolates by assays which hitherto have never been used to test drimanes. Structure-activity related (SAR) studies are also discussed.

Outlined in part II is the isolation and characterization of twenty compounds from two genera of the Piperaceae family. Chapters 4-8 examine

species of the genus *Piper* and those of the genus *Peperomia* are described in chapters 9-11. Chapter 12 describes the bioassays and SAR studies of the isolates. The metabolites produced by Old World vs. New World *Piper* species are reviewed in chapter 4. Two compounds including a new amide, compound F (**31**), are described from *Piper verrucosum* in chapter 5. Chapter 6 examines *Piper murrayanum* which yielded six compounds that include the new prenylated hydroxybenzoic acid derivatives, compounds H (**40**) and I (**41**). Chapter 7 describes six amides from *Piper amalago* var. *nigrinodum* of which compounds O (**64**) and Q (**74**) are new. *Piper fadyenii*, which gave one isolate, is examined in chapter 8.

The phytochemistry of the *Peperomia* genus is reviewed in chapter 9 and chapter 10 describes a new prenylated benzopyran, compound U (**96**), from *Peperomia clusiifolia*. The isolates of *Peperomia proctorii* are described in chapter 11. Four isolates were obtained of which three are new. These are the chromanone derivative, compound V (**99**) and the 2-acyl-cyclohexane-1,3-dione derivatives, W (**106**) and X (**114**).