

ABSTRACT

This thesis describes the extraction, isolation and characterization of secondary metabolites from *Quassia multiflora*, *Picrasma excelsa* and *Simarouba amara*, which are members of the family Simaroubaceae. Various 2D NMR techniques were utilized in the structural determination of the compounds including COSY, HMQC, HSQC, HMBC and NOESY.

The thesis consists of four chapters of which chapter one is a brief review of the squalene triterpenes derived from nature. The majority of these compounds are derived from algae of the genus *Laurencia*. The second chapter deals with a chemical investigation of *Quassia multiflora*, where two squalene triterpenes, one containing a tetrahydrofuran ring, were isolated. These compounds were previously isolated as the acyl derivatives in order to facilitate purification.

Chapter three describes a chemical investigation of *Picrasma excelsa* and includes a concise, but comprehensive account of alkaloids previously isolated from this genus. In this investigation, three β -carboline alkaloids, a canthin-6-one alkaloid, the commonly isolated linear diterpene phytol, a quassinoid and a squalene triterpene were obtained. The squalene triterpene, which possess three tetrahydrofuran rings, has hitherto been isolated from marine algae.

The last chapter describes a chemical investigation of *Simarouba amara*. It includes a brief review of the work previously reported from this plant. One known quassinoid and four triterpenes were isolated. One triterpene was a known tirucallane derivative while the other three are novel apotirucallanes containing a seven-membered ring lactone in ring A.