BIOTRANSFORMATIONS OF STEROIDS BY *FUSARIUM OXYSPORUM* F. SP. *CUBENSE* AND NATURAL PRODUCTS FROM JAMAICAN MEDICINAL PLANTS

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ABSTRACT

Part 1 of this thesis details an investigation of the bioconversion of steroids using the fungus *Fusarium oxysporum* f. sp. *cubense*. The bioconversion of steroids by this fungus has not been reported previously. Chapter 1 discusses briefly the bioconversion of steroids in general and highlights the proper fermentation procedure. A review of the mechanisms of transformation by P_{450} enzymes is also included. Chapter 2 gives details of the fungus being studied as well as reviews some of the compounds isolated from *Fusarium oxysporum*. The biotransformations carried out by *Fusarium* sp. are also reported. In Chapter 3 the development of the best medium for maximum growth is outlined. The detailed spectral analysis of the metabolites formed during the oxidation of the added steroids is presented in Chapter 4.

Part 2 of this thesis forms the first report of the isolation of the triterpenes taraxeryl acetate, epi-friedelinol and friedelin from the Jamaican folk medicinal plant *Cola acuminata* (Sterculiaceae). These are of the rearranged oleanane skeleton. The phytosterol β-sitosterol as

well as 4-hydroxy-3-methoxybenzoic acid were also characterised as forming part of the chemical composition of *Cola acuminata*.

The appendix gives the summary of the work done in the isolation and purification of the phytosterol, α-spinasterol from the folk medicinal plant *Stachytarpheta jamaicensis* (Verbenaceae).