

ABSTRACT

This thesis investigates the essential oils and oleoresins of Jamaican pimento, *Pimenta dioica*. Chapter one consists of a brief review of the genus *Pimenta*. Chapter two is a detailed study of the plant, *Pimenta dioica*, looking at its biology, uses, activity, essential oils and oleoresin.

Chapter three recounts the isolation of nine compounds, sitosterol and compounds A to H, from the berry oleoresin of *P. dioica*. The structures of compounds A, G and H were not determined. Compounds B, C and D were identified as vanillin, coniferaldehyde and oleanolic acid, respectively. Compound E is the chroman, 3-hydroxy-7-methoxychroman, while compound F appears to be another chroman, for which a structure was proposed. A non-polar oil was also isolated from the oleoresin, which upon investigation by gas chromatography was seen to contain some of the non-polar compounds typical of the leaf and berry essential oils e.g. eugenol and β -caryophyllene. All these compounds probably contribute to the flavour of the spice, pimento.

Chapter four discusses the existence of chemical differences between the foliar oil of male and female pimento trees. It was determined from these studies that it is possible to predict the gender of a pimento tree. The acaricidal activity of *P. dioica* is examined in chapter five. The potential use of *P. dioica* oleoresins, essential oils and components as natural pesticidal agents for Acarina was demonstrated.