

ABSTRACT

The Isolation and Identification of the Principal Hypoglycaemic Components of the Indigenous Jamaican Plant *Pilea elizabethae*

Colleen Nadia Antoinette Salmon

Pilea elizabethae grows profusely in the hilly areas of Jamaica. Folklore has it that this indigenous plant is useful in the treatment of a variety of ailments. The purpose of this study was to investigate the hypoglycaemic activity present in the plant and to isolate and determine the chemical structures of the active components. Isolation of the active components was achieved by a series of chromatography experiments guided by oral glucose tolerance testing. The bio-directed purification yielded compounds **R-E2Gii** and **R-E2Giii** which were identified by nuclear magnetic resonance, infra-red spectroscopy and by comparison of their physical properties as oleanonic acid and beta-sitosterol, respectively. Both compounds showed significant lowering of blood glucose in animal models when administered both orally and intravenously. Oleanonic acid

showed remarkable dose-dependent strengthening of its activity during intravenous administration. Combination of the two isolates intensified the blood glucose lowering capacity of both compounds. The significant yields of both compounds from *Pilea elizabethae* and their relative abundance in many other plants make beta-sitosterol and oleanonic acid ideally suitable for development into dietary supplements for patients suffering from impaired glucose tolerance and diabetes.

Keywords: hypoglycaemia, diabetes, phytosterol, beta-sitosterol, oleanonic acid, triterpenoid, nutraceutical.