

ABSTRACT

Compounds from *Peperomia* Species of Jamaica – Characterization and Synthesis

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The study of natural products remains relevant in scientific discovery. This research aims to play a part through the phytochemical investigation of various species of *Peperomia*. Chapter one gives a brief introduction to the Piperaceae family, as well as a review showing the variety of secondary metabolites isolated from *Peperomia* species. The biological activities of these compounds are also described. Chapter two focuses on the compounds isolated from *Peperomia* sp. nov., *Peperomia amplexicaulis*, *Peperomia hernandiifolia*, *Peperomia crassicaulis* and *Peperomia stellata*. *Peperomia* sp. nov. yielded five 2-acylcyclohexane-1,3-dione derivatives, one of which, proctorione C, was assessed for biological activity. This compound was derivatized and molecular modeling studies were carried out on a dealkylated model compound. Two lignans were also found, one of which was novel. From *P. amplexicaulis* a prenylated phenol and a prenylated benzopyran were isolated. *P. crassicaulis* yielded two prenylated phenols. *P. hernandiifolia* produced two novel meroterpenoids: a chromene and a prenylated phenolic carboxylic acid. A 2-acylcyclohexane-1,3-dione, a sesquiterpene and a novel triterpene were isolated from *P. stellata*. Chapter three reviews the biological activities and preparation strategies of prenylated phenolic derivatives. Chapter four describes approaches towards the syntheses of the two compounds isolated from *P. hernandiifolia* via direct and indirect C-prenylation.

Keywords: April Antoinette Johnson; natural products; *Peperomia*; piperaceae and synthesis