

ABSTRACT

Isolation and Characterization of Secondary Metabolites from the Genus *Caesalpinia* (Caesalpinaceae)

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This thesis is divided into three chapters. Chapter one is a literature review on the genus *Caesalpinia*, divided into three sections. In the first section, the secondary metabolites isolated from *Caesalpinia pulcherrima* are examined, while in the second section the secondary metabolites isolated from *Caesalpinia bonduc* are examined. In the final section, diterpenes isolated from other species within the genus *Caesalpinia* are the focus.

Chapter two is a chemical investigation of the roots of the Pride of Barbados, *Caesalpinia pulcherrima*. Twelve cassane-type diterpenoids (compounds A-L) were isolated, among them, three were known: pulcherrimin A (compound C), isovouacapenol C (compound G), and 6 β -cinnamoyl-7 β -hydroxyvouacapen-5 α -ol (compound L). Also included are the results of anti-cancer testing of compounds A, D, and F by the National Cancer Institute in Bethesda, Maryland, USA.

Chapter three is a chemical investigation of *Caesalpinia bonduc* leaves and roots. Eleven secondary metabolites (compounds M-W) were isolated and seven of

these were novel, namely compounds M, O-Q, T, V, and W. Also included are the results of anti-cancer testing of compounds O, R, and S by the National Cancer Institute in Bethesda, Maryland, USA.

Keywords: Joy Sherry Roach, cassane-type diterpenoids, *Caesalpinia*, *Caesalpinia pulcherrima*, *Caesalpinia bonduc*, Caesalpiniaceae, secondary metabolites, anti-cancer testing, National Cancer Institute.