



University of Venda

**SYNTHETIC AND SPECTROSCOPIC STUDIES OF 6-SUBSTITUTED
CHROMONE DERIVATIVES**

By

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Abstract

Chromones and chromone derivatives are naturally occurring compounds found in the plant kingdom; for example, baicalein was used as a diuretic and anti-allergic drug in ancient Chinese medicine. A range of chromone-2-carboxylic acids were synthesized from six substituted 2-hydroxyacetophenones. From these chromone-2-carboxylic acids, the acid chlorides were synthesized, from which chromone-2-carboxamide derivatives such as *N,N*-dimethylchromone-2-carboxamide, 1-[(6-bromochromon-2-yl)-carbonyl]-pyrrolidine, 1-[(6-chlorochromon-2-yl)-carbonyl]-pyrrolidine, 1-[(6-methoxychromon-2-yl)-carbonyl]-pyrrolidine, 1-[(6-bromochromon-2-yl)-carbonyl]-morpholine were also synthesized. The Suzuki cross-coupling reaction was also utilized, inserting a benzene ring in the chromone moiety of several chromone-2-carboxamides.

The compounds synthesized were purified either by flash chromatography or recrystallization using ethanol-water. The yields of chromone-2-carboxylic acids ranged from 85-90 %, those of the chromone-2-carboxamides ranged from 40-72 %, and for the Suzuki reaction the yields ranged from 40-55 %.

The compounds synthesized were analysed by ^1H and ^{13}C nuclear magnetic resonance spectroscopy. The spectra of these compounds were as expected for the target compounds. The synthesized compounds were also analysed by FTIR spectroscopy for their functional groups, confirming the identities of the target compounds.

Keywords: *Chromones, synthesis, bioactivity, spectroscopy, flash chromatography.*