

# ABSTRACT

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The aim of this diploma thesis is to create a comprehensive overview of alkaloids studied so far in genera of the Amaryllidaceae J.St.-Hil. family that are endemic to South Africa. These genera include following taxa: *Amaryllis* L., *Ammocharis* Herb., *Boophone* Herb., *Brunsvingia* Heist., *Crinum* L., and *Cyrtanthus* Aiton. A characterization of these genera from the perspective of anatomy, morphology, and occurrence was conducted, a summary of 97 alkaloids isolated from 22 studied species of these genera was gathered, and an overview of their biological activity and the potential influence of their structure on this biological activity was created. Plants of these genera are particularly rich in alkaloids of the haemanthamine, crinine, and lycorine structural types. The isolated alkaloids demonstrated antineoplastic, antiprotozoal activity, inhibitory activity against acetylcholinesterase and butyrylcholinesterase, and other biological effects. This thesis also includes a botanical characterization of the Amaryllidaceae J.St.-Hil. family, a simplified description of the biosynthesis of Amaryllidaceae alkaloids and a brief description of the geographical regions and horticultural zones of the Republic of South Africa, where most species of the mentioned endemic genera occur. Furthermore this thesis includes an characterization of three major groups of diseases against which the biological activity of the isolated alkaloids of the mentioned endemic genera was studied the most, and the use of selected endemic plants of the Amaryllidaceae J.St.-Hil. family in traditional medicine.

**Keywords:** Amaryllidaceae, endemite, South Africa, alkaloids, antiproliferative activity, lycorine, distichamine, narciprimine, ambelline, galanthamine