

## CHAPTER 7

### SUMMARY

## THE MEDICINAL VALUE OF AMARYLLIDACEAE AND ASTERACEAE SPECIES USED IN MALE CIRCUMCISION

by

**Fikile Dilika**

**Promoter: Prof J.J.M. Meyer**

**Department: Botany**

**Degree: PhD (Plant Physiology)**

The indigenous people of South Africa still practise their cultural traditions widely. Traditional male circumcision is a common ritual and mainly performed in the wild. *Helichrysum pedunculatum* (Asteraceae) is the most commonly used herb in wound dressing during these rituals. Scales of *Boophone disticha* and *Scadoxus multiflorus* (Amaryllidaceae) are also applied as a dressing in both fresh and dry forms, to wounds, depending on community.

Dry leaf extracts of *H. pedunculatum* showed antibacterial activity against the Gram-positive bacterial species. *Staphylococcus aureus*, the most common cause of bacterial infection in male circumcised patients, was also inhibited. Antibacterial activity-guided fractionation of the dichloromethane leaf extract led to the isolation of linoleic and oleic acids. These two acids were active on Gram-positive bacterial species.

The advancement of high throughput screening has overcome the barrier of large numbers of fractions to be tested in assays. Crude *H. pedunculatum* ethanolic extract was subjected to CPC fractionation and the resulting fractions were tested on adenosine A<sub>1</sub> and opiate receptor binding assays. All crude extracts showed activity. The receptor binding-guided fractionation led to the isolation of linoleic acid. This compound is however regarded as false positive in this assay.

The Amaryllidaceae species used during circumcision rituals were investigated using the acetylcholinesterase inhibitory enzyme assay. It was found that *B. disticha* and *S. multiflorus* showed the same activity profile at a concentration of 0.1 mg/ml. The bioassay-guided fractionation led to the isolation of galanthamine from *S. multiflorus*, a compound already undergoing clinical trials for the treatment of Alzheimer's disease.

Finally, with the right resources and effort, plant based drugs can be the way forward in our search for new leads in drug discovery. The herbs used in

traditional male circumcision in South Africa might also yield good results in pain management investigations.

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