

Systematics of *Hypoxis* (Hypoxidaceae) in southern Africa

by

Yashica Singh

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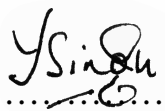
Department of Plant Science
University of Pretoria
Pretoria

Promoter: Prof. Dr. A.E. van Wyk

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Declaration:

I, YASHICA SINGH, declare that the thesis, which I hereby submit for the degree PHILOSOPHIAE DOCTOR at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

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DATE: 17 July 2009

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ABSTRACT

Singh, Y. Systematics of *Hypoxis* L. (Hypoxidaceae) in southern Africa. Department of Plant Science, University of Pretoria. Unpublished thesis. Pages 424, tables 22, figures 117. March 2009. Promoter: Prof. Dr. A.E. van Wyk. **Keywords:** anatomy, descriptions, *Hypoxis*, key, morphology, phytochemistry, phytogeography, seed surface, taxonomy.

Hypoxis is a diverse group of perennial geophytic herbs characterised by hairy leaves and yellow (seldom white) star-shaped flowers. The genus comprises about 70 species with a distribution in the warmer parts of all continents except Europe. With one third of the taxa, the Flora of southern Africa region (South Africa, Swaziland, Lesotho, Namibia and Botswana) is the most species rich for the genus world-wide. A taxonomic revision of the genus in southern Africa was undertaken; 28 species are recognised, one, *H. nivea* having been newly described. Morphological data were gathered through field observations and specimens kept in cultivation as well as herbarium specimens. Habit, leaf dimensions, inflorescence type and distribution of hairs on leaves were found to provide reliable diagnostic characters for species separation. These characters in combination with geographical distribution patterns were applied in drawing up a key to species in the Flora of southern Africa region. The treatment also includes brief notes on diagnostic characters and relationships, distribution and ecology, etymology, red data status and common names for each taxon. Nine species are data deficient due to insufficient collections or type specimens still to be located, and remain unresolved. Evidence from vegetative anatomy, seed micromorphology and preliminary phytochemistry were used to test possible phylogenetic relationships among species inferred from macromorphology. A few members of the southern African *Hypoxis* are of medicinal importance as their rhizomes are a rich source of hypoxoside which in its hydrolysed form has been shown to inhibit the growth of some cancer cells. Based largely on a literature survey, a review of the ethnobotany of the Hypoxidaceae, denoting the food, medicinal and magical value of members of the family is also offered.

Yashica Singh
South African National Biodiversity Institute
KwaZulu-Natal Herbarium
Botanic Gardens Road
DURBAN, 4001
SOUTH AFRICA

INDEX TO SPECIES AND INFRASPECIFIC TAXA

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