



## Review

Unraveling the medicinal potential of South African *Aloe* species

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## ABSTRACT

**Ethnopharmacological relevance:** *Aloe* species (family: Xanthorrhoeaceae) are widely used in ethnomedicine for treating various ailments. Approximately 125 *Aloe* taxa are documented as indigenous to South Africa. This review was aimed at critically evaluating the available data on the ethnomedicinal uses, pharmacological activities, safety and conservation status of the documented South African *Aloe* species. **Materials and methods:** A detailed search using major electronic search engines (such as Google Scholar, Scopus and Scirus) and ethnobotanical literature was undertaken. Search terms used included 'medicinal properties of *Aloe* species', 'biological activity of South African *Aloe* species' and 'safety and toxicological evaluation of aloes'.

**Results:** Although *Aloe* species are widely used as laxatives and for treating wound and skin-related ailments, only about 20% of South African *Aloe* species have been clearly documented for their medicinal uses. The pharmacological potential including the antimicrobial, anti-inflammatory, antiparasitic and anthelmintic activities of some of the species has been established, providing a rationale for their use in traditional medicine. Successful micropropagation protocols have been developed as a conservation strategy, but only for a few species.

**Conclusions:** The highlighted medicinal activities of some *Aloe* species indicate their therapeutic potential. Nonetheless, further research especially on the understudied species is required to properly document their ethnomedicinal uses and fully explore their pharmacological value.

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## 1. Introduction

In addition to the new taxa continuously being described, the genus *Aloe* (family: Xanthorrhoeaceae) presently includes over

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**Table 1**  
Ethnomedicinal uses and conservation status of indigenous South Africa *Aloe* species.

Species	Conservation status <sup>a</sup>	Traditional uses	References
<i>Aloe aculeata</i> Pole-Evans	LC		
<i>Aloe affinis</i> A. Berger	LC		
<i>Aloe africana</i> Mill.	LC	As a purgative agent	Watt and Breyer-Brandwijk (1962)
<i>Aloe albida</i> (Stapf) Reynolds	NT		
<i>Aloe alooides</i> (Bolus) Druten	LC		
<i>Aloe angelica</i> Pole-Evans	LC		
<i>Aloe arborescens</i> Mill.	LC	Leaf decoctions are used in childbirth. Cold leaf infusions are used to drench sick calves. Leaf sap is applied externally to treat skin irritations, eczema, bruises and burns. Tonic from leaves is used for treating or preventing cancer. The juice has been used for some relief in the treatment of X-ray burns.	Watt and Breyer-Brandwijk (1962), Hutchings et al. (1996) and Van Wyk et al. (1997)
<i>Aloe arenicola</i> Reynolds	NT		
<i>Aloe aristata</i> Haw.	LC	Whole plants are used as a sprinkling protective medicine. For inducing pregnancy in Lesotho. The juice is mixed with water and used as a tonic wash for the body.	Watt and Breyer-Brandwijk (1962) and Hutchings et al. (1996)
<i>Aloe barberae</i> Dyer	LC	Gel from leaf sap is applied to relieve sores.	Ndhkala et al. (2009)
<i>Aloe bowiea</i> Schult. & J.H. Schult	CR		
<i>Aloe branddraaiensis</i> Groenew	LC		
<i>Aloe brevifolia</i> Mill. var. <i>brevifolia</i>	VU		
<i>Aloe brevifolia</i> Mill. var. <i>depressa</i> (Haw.) Baker	DDT		
<i>Aloe broomii</i> Schönland var. <i>broomii</i>	LC		
<i>Aloe broomii</i> Schönland var. <i>tarkaensis</i> Reynolds	Rare	Leaf juice of unspecified variety is used as a purgative.	Van Wyk (2008)
<i>Aloe buhrii</i> Lavranos	VU		
<i>Aloe castanea</i> Schönland	LC	Ashes from burnt old dry leaves are used as insect repellent in stored grain.	Watt and Breyer-Brandwijk (1962)
<i>Aloe chabaudii</i> Schönland var. <i>chabaudii</i>	LC		
<i>Aloe challsii</i> Van Jaarsv & A.E. van Wyk	VU		
<i>Aloe chlorantha</i> Lavranos	VU		
<i>Aloe chortolirioides</i> A. Berger var. <i>chortolirioides</i>	VU		
<i>Aloe chortolirioides</i> A. Berger var. <i>woolliana</i> (Pole-Evans) Glen & D.S. Hardy	LC		
<i>Aloe ciliaris</i> Haw. var. <i>ciliaris</i>	LC		
<i>Aloe ciliaris</i> Haw. var. <i>redacta</i> S. Carter	VU		
<i>Aloe ciliaris</i> Haw. var. <i>tidmarshii</i> Schönland	Rare		
<i>Aloe claviflora</i> Burch	LC		
<i>Aloe commixta</i> A. Berger	VU		
<i>Aloe comosa</i> Marloth & A. Berger	Rare		
<i>Aloe cooperi</i> Baker subsp. <i>cooperi</i> Bak.	Declining	Roots are an ingredient in infusion to ensure easy delivery. The flowers are cooked and eaten as a vegetable. Smoke from burning leaves is used to protect cattle from ill effects of eating improper food.	Gerstner (1941), Watt and Breyer-Brandwijk (1962) and Hutchings et al. (1996)
<i>Aloe cooperi</i> Baker subsp. <i>pulchra</i> Glen & D.S. Hardy	DDT		
<i>Aloe craibii</i> Gideon F. Sm	CR		
<i>Aloe cryptopoda</i> Baker	LC		
<i>Aloe dabenorisana</i> Van Jaarsv	Rare		
<i>Aloe dewetii</i> Reynolds	LC		
<i>Aloe dichotoma</i> Masson	VU		
<i>Aloe dominella</i> Reynolds	NT		

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