



## Medicinal plants used by the Bapedi traditional healers to treat diarrhoea in the Limpopo Province, South Africa

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### ABSTRACT

**Ethnopharmacological relevance:** This paper provides ethnobotanical information on medicinal plants used to treat diarrhoea in the Limpopo Province, South Africa. Documentation of this nature usually provides the basis for selecting medicinal plants for future phytochemical and pharmaceutical studies aimed at developing new, effective and affordable plant-derived diarrhoea remedies.

**Aim of the study:** To record and document medicinal plants used by the Bapedi traditional healers to treat diarrhoea in the Limpopo Province, South Africa.

**Materials and methods:** In order to record and document medicinal plants used by the Bapedi traditional healers to treat diarrhoea, 51 healers from 17 municipalities covering Capricorn, Sekhukhune and Waterberg districts in the Limpopo Province, South Africa were interviewed between January and July 2011. Data collected included the names of plants, plant part(s) used, methods of herbal preparation, administration, dosage and duration of treatments. Voucher specimens of the plants used by the Bapedi traditional healers to treat diarrhoea were collected, identified and deposited as future reference material at the Larry-Leach Herbarium (UNIN), University of Limpopo.

**Results:** A total of 20 plant species representing 16 families and 20 genera were found to be commonly used by the Bapedi traditional healers to treat and manage diarrhoea in the Limpopo Province, South Africa. The largest proportion of the medicinal plants belonged to the families Anacardiaceae, Asteraceae, Fabaceae and Malvaceae (10% each). The most frequently used species were *Punica granatum* (39.2%), *Grewia bicolor* (33.3%), *Dombeya rotundifolia* (21.6%), *Commiphora marlothii* (19.6%) and *Acacia senegal* (13.7%). The roots were the most commonly used plant part (50%), followed by leaves (20%), bark (15%), fruits (10%), pericarp, seed, tuber and whole plants (5% each). Mono therapies based on preparations made from a single plant species were the most dominant (90%). All medicinal preparations were taken orally for 1 week or until diarrhoea subsided. The therapeutic claims of the medicinal plants documented in this study are well supported by literature, with 70% of the species having anti-diarrhoeal properties or are used as diarrhoea remedies both in South Africa and also in other countries.

**Conclusion:** This study reveals that local communities in the Limpopo Province, South Africa still depend on traditional medicines for basic healthcare; and the use of traditional medicines is still an integral part of their socio-cultural life.

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### 1. Introduction

Diarrhoea is defined as the passing per day of three or more loose or watery stools that can take the shape of a container (Keusch et al., 2006). Diarrhoea is regarded worldwide as one of the major causes of death (Farthing, 2000). The major causative agents of diarrhoea in human beings include various enteropathogens like *Escherichia coli*, *Salmonella typhi*, *Shigella flexneri* and *Staphylococcus aureus* (Anne and Geboes, 2002). Human beings,

particularly those in developing countries are exposed to these potentially harmful infectious organisms. The major burden of infection is due to food-borne infections caused by *Salmonella*, *Campylobacter jejuni* and *Escherichia coli* and water-borne infections particularly as a result of contamination of domestic water supplies with the cysts of *Giardia intestinalis* and *Cryptosporidium parvum* (Mathabe et al., 2006). According to De Wet et al. (2010), an estimated 88% of diarrhoeal-related deaths are caused by inadequate sanitation and poor hygiene. The main cause of death from diarrhoea is dehydration, which results from the loss of electrolytes in diarrhoeal stools.

There are three major diarrhoea syndromes which include acute watery diarrhoea, which results in varying degrees of dehydration; persistent diarrhoea, which lasts 14 days or longer,

Abbreviations: AIDS, acquired immunodeficiency syndrome; HIV, human immunodeficiency virus

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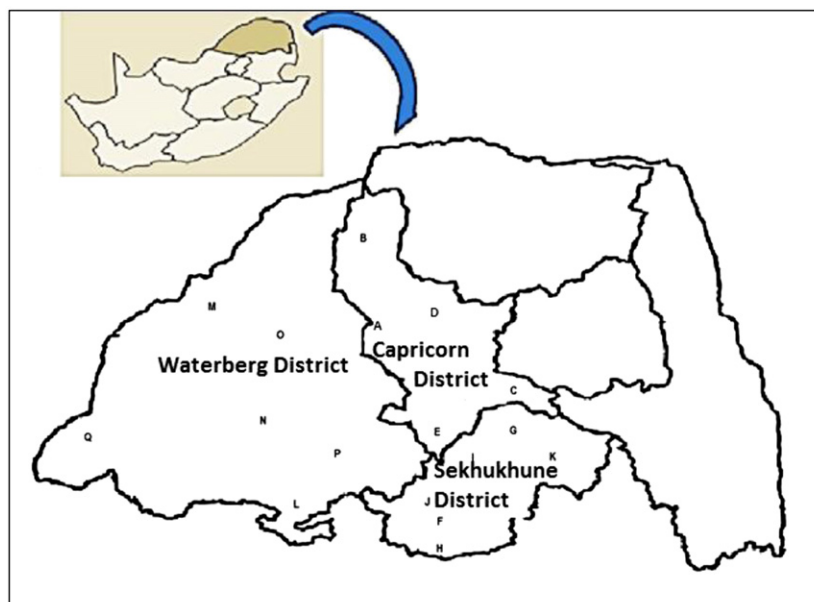


Fig. 1. Study area: Capricorn, Waterberg and Sekhukhune districts, Limpopo Province, South Africa. A to Q designates the involved municipalities.

manifested by malabsorption, nutrient losses, and wasting; and bloody diarrhoea, which is a sign of the intestinal damage caused by an infectious agent, drugs, poisons or acute inflammatory reactions (Keusch et al., 2006). Diarrhoea affects all age groups. But, in young children, it is the second most common cause of death in children under 5 years of age worldwide and is responsible for 2.4 million deaths each year (Forsberg et al., 2007). It is estimated that diarrhoeal disease is the primary cause of death in infants younger than 5 years, leading to about 160–200 deaths per day (Medical Research Council, 2012). About 43,000 South African adults die every year from diarrhoeal disease while the annual public and private health care costs as a result of diarrhoea are about \$4.3 million (Pegram et al., 1998). Diarrhoea is a major concern in all provinces of South Africa. In Limpopo Province as well as other poorer provinces such as Northern Cape in South Africa, diarrhoeal disease is the first cause of mortality after HIV/AIDS (Bradshaw et al., 2005).

Traditional medicines are an important source of drugs in rural areas. Traditional healers are deeply interwoven into the fabric of cultural and spiritual life of local communities where there are no health services (Clarke, 1998). In these areas, traditional medicines are important sources of anti-diarrhoeal drugs (Maikere-Faniyo et al., 1989; Mathabe et al., 2006). Traditional healers are the first health practitioners to be consulted in up to 80% of cases (especially in rural areas), and they are present in almost every community, which means that they are easily accessible in remote areas where there are no health services (Clarke, 1998). For most parts of South Africa, this rich indigenous knowledge on medicinal plants used to treat diarrhoea is not adequately documented, although there have been a few attempts to document such plants in the Eastern Cape Province (Appidi et al., 2008; Bisi-Johnson et al., 2010) and KwaZulu Natal Province (Lin et al., 2002; De Wet et al., 2008, 2010). Although occasional attention was paid to this subject by Mathabe et al. (2006) in the Limpopo Province, there is little information on medicinal plants used to treat diarrhoea by the Bapedi ethnic group, the largest (57%) in the Limpopo Province (Lodge, 2005). This investigation is part of a larger study (see Semanya et al., 2012) to document the ethnobotanical knowledge held by the Bapedi people. Therefore, the present study was aimed at documenting medicinal plants used by the Bapedi traditional healers to treat diarrhoea in the Limpopo Province, South Africa.

Table 1

Municipal districts and local municipalities included in this study.

Capricorn district	Sekhukhune district	Waterberg district
Aganang (A)	Elias Motsoaledi (F)	Bela-Bela (L)
Blouberg (B)	Fetakgomo (G)	Lephalale (M)
Lepelle-Nkumpi (C)	Groblerdsdal (H)	Modimolle (N)
Molemole (D)	Makhuduthamaga (I)	Mogalakwena (O)
Polokwane (E)	Marble Hall (J)	Mookgophong (P)
	Tubatse (K)	Thabazimbi (Q)

## 2. Materials and methods

### 2.1. Study area

The present study was carried out in 17 local municipalities (Fig. 1, Table 1), covering three of five districts (Capricorn, Sekhukhune and Waterberg) that constitute the Limpopo Province. The socio-economic status of the area is low, public health services are minimal, and many communities do not have access to treated drinking water. Only 14.2% of households in the area have rubbish removal once per week; 16.8% of households have access to flush or chemical toilets and 46.7% households have pit latrines without a ventilation pipe (Statistics South Africa, 2002). Consequently, diarrhoea is one of the common diseases in the study area (Bradshaw et al., 2003).

### 2.2. Data collection

A total of 51 Bapedi traditional healers were selected purposefully with the help of local administrators and elderly people from 17 municipalities within the three districts of the Limpopo Province (Fig. 1, Table 1). The selected traditional healers were professional practitioners who medicated the local people using local medicinal plants, animals and their products. Traditional healers' age range was from 22 to 79 years (median=63), and the majority were men 68.6% (Table 2). The sample population was not well-educated, with illiterate level of 90.2% (Table 2). A small proportion of traditional healers were educated up to secondary level (9.8%). Data on medicinal plants used by the Bapedi traditional healers to treat diarrhoea in the Limpopo Province were collected from January 2011 to July 2011. The interviews and discussions with the traditional

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