



# Ethnobotanical survey of culinary herbs and spices used in the traditional medicinal system of Nkonkobe Municipality, Eastern Cape, South Africa



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## ARTICLE INFO

### Article history:

Received 15 June 2015

Received in revised form 22 September 2015

Accepted 12 January 2016

Available online 29 January 2016

Edited by J Van Staden

### Keywords:

Ethnobotanical survey

Culinary

Herbs

Medicinal plants

Spices

## ABSTRACT

This study was conducted to identify and document herbs and spices used for culinary and medicinal purposes in Nkonkobe Municipality, Eastern Cape Province of South Africa. Seventy four community members were interviewed in 7 locations using the rapid appraisal method. Ethnobotanical data was collected for 58 species of plants belonging to 29 families and 50 genera. The use-value and informant consensus factor (ICF) were employed to determine the relative importance of the spices, their culinary and medicinal uses, as well as the homogeneity of the informants' knowledge. The plant family with the highest ICF was Solanaceae with 6 species, and this was followed by Apiaceae, Amaranthaceae and Lamiaceae with five species each respectively. The spice with the highest therapeutic uses was *Lippia javanica* (Burm. F.) Spreng., known locally as Inzinziniba. The parts of the plants used as spices are; leaves (52%), rhizome (13%), fruits (12%), seeds (20%) and roots (3%). The plants species enumerated are used for food seasoning (17%), flavouring (12%), as leafy vegetables (6%), preservatives (29%) and traditional medicines (36%). Majority of the spices are prepared for medicinal use as infusions (40%), decoctions (30%), decoctions or tinctures (13%), tinctures (5%) and decoctions or infusions (12%). This survey on herbs and spices used for culinary and medicinal purposes to the best of our knowledge is the first report on plants used as spices in this region. It will therefore serve as a reference as well as document and preserve the indigenous knowledge of these herbs and spices in Nkonkobe municipality, Eastern Cape and South Africa at large.

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## 1. Introduction

Spices are dried seeds, fruits, roots, barks or vegetable substances used primarily to flavour, colour or preserve food in the culinary arts. It is any dried part of a plant used for these three purposes but not as the main ingredient. According to the European Spice Association, culinary herbs and spices are the edible parts of plants that are traditionally added to foodstuff for their natural flavourings, aroma, visual appearance and preservative purposes (ESA, 2013). Common examples of herbs are sage, parsley, basil, oregano, rosemary, dill and thyme, while spices include buds (cloves), bark (cinnamon/cassia), roots (ginger), berries (peppercorn) and seeds (Tapsell et al., 2006). Herbs and spices have a rich history of traditional use for their culinary effect, as well as their ability to prevent and treat chronic health maladies. Several herbs and spices such as garlic, ginger, ginseng, turmeric, cinnamon, cayenne pepper and cardamom are of particular interest in view of their modulatory effects on atherosclerosis, cancer, diabetes, obesity, inflammation, arthritis, immune deficiency, free radicals, microbes, ageing and mental health (Lai and Roy, 2004; Tapsell et al., 2006; Kaefer and Milner, 2008; Panickar, 2013).

According to Kaefer and Milner (2008) many ethnic cuisines are today recognized for their reliance on “signature” herbs and spices. Turmeric in Indian cuisine; basil, garlic, and oregano in Italian and Greek cuisines; and lemongrass, ginger, cilantro, and chili peppers in Thai food represent some of the cultural diversity in the use of herbs and spices. In most parts of southern Africa, there is little evidence of ancient use of spices in food. Information on plant species used as spices and condiments are inadequate or completely lacking. According to Van Wyk (2011), spices are relatively rare in South Africa but some spices such as *Heteropyxis natalensis*, *Mentha longifolia*, *Myrothamnus flabellifolia*, *Pelargonium graveolens*, *Siphonochilus aethiopicus* and *Warburgia salutaris* are of importance as potential sources of new flavours for the food industry. However, while the culinary evidence for the use of common herbs and spices have been scarce or lacking, their beneficial effects in ethnomedicinal applications abound and are generally encouraging.

The Eastern Cape is one of the poorest provinces in South Africa but is well known for its diversity in plant species (Afolayan et al., 2014). The Xhosa people are the major inhabitants of this province and they live primarily in the areas called Ciskei and Transkei. Plants used in traditional medicine by the Xhosas have been extensively documented (Bhat and Jacobs, 1995; Bhat, 2013; Afolayan et al., 2014). A large number of plants of ethnobotanical value indigenous to the Eastern Cape

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**Table 1**  
Medicinal plants used as spices and herbs in Nkonkobe municipality.

Botanical name/family name	Local name/common name	Habit	Frequency	*Use-value (UV)	Part(s) used	Culinary uses	Therapeutic uses	Mode of Preparation
<i>Aloe ferox</i> Mill./Xanthorrhoeaceae	Ikhala (X)/Bitter aloe (C)	Herbaceous	2	0.85	Leaves	Seasoning and preservative	Purgative	Decoction
<i>Agathosma betulina</i> (P. J. Belgius) Pillans/Rutaceae	Ibhuchu (Z)/Buchu (C)	Shrub	10	4.24	Leaves and roots	Seasoning and preservative	General immune booster	Infusion
<i>Alepidea amatymbica</i> Eckl. & Zeyh./Apiaceae	Iqwili (X)/Larger tinsel flower (C)	Herbaceous	4	1.69	Roots	Seasoning and preservative	Colds, coughs, rheumatism, wounds and to wash divining bones	Infusion
<i>Anethum graveolens</i> L./Apiaceae	Dille (X)/Dill (C)	Herbaceous	15	6.36	Leaves and seeds	Seasoning and preservative	Erectile dysfunction, also used for protection against witchcraft.	Decoction or Infusion
<i>Allium cepa</i> L./Amaryllidaceae	Ikonofile (Z)/Onions (C)	Herbaceous	2	0.85	Leaves and bulb	Seasoning and preservative	Treat ulcer	Infusion
<i>Allium sativum</i> L./Amaryllidaceae	Ivimbampunzi (X) Ikonofile(Z)/Garlic (C)	Herbaceous	4	1.69	Leaves and bulb	Seasoning and preservative	Stomach ache, throat infections, also used for protection against witchcraft	Infusion
<i>Arctotis arctotoides</i> (L.F.) O. Hoffm./Compositae	Ubushwa (X)	Herbaceous	2	0.85	Leaves	Flavouring and preservative	To treat fungal infection	Infusion
<i>Argyrolobium argenteum</i> (Jacq.)Eckl.& Zeyh./Leguminosae	Umfanujale (X)	Herbaceous	1	0.42	Leaves	Flavouring and preservative	Topical (external application to the infected surface)	Decoction
<i>Artemisia afra</i> Jacq. ex. Willd./Compositae	Umhlonwane (X)/Wild wormwood (C)	Shrub	10	4.24	Leaves	Seasoning and preservative	General immune booster	Infusion
<i>Amaranthus caudatus</i> L./Amaranthaceae	Utyuthu(X)/love-lies-bleeding (C)	Herbaceous	4	1.69	Leaves	Leafy vegetable	Astringent, anthelmintic, diuretic, scrofulous sores.	Infusion
<i>Amaranthus hybridus</i> L./Amaranthaceae	Imbuya (X)	Herbaceous	1	0.42	Leaves	Leafy vegetable	Anthelmintic, astringent, antidiarrheal	Decoction
<i>Asparagus africanus</i> L./Asparagaceae	Umathunga (X)	Climber	1	0.42	Leaves	Leafy vegetable	Pro-fertility	Infusion
<i>Beta vulgaris</i> L./Amaranthaceae	Beetroot (C)	Shrub	2	0.85	Leaves	Leafy vegetable	Anti-tumour, carminative, emmanagogue	Infusion
<i>Bidens pilosa</i> L./Compositae	Umhlabangubo (X)/Marigold	Herbaceous	3	1.27	Leaves	Leafy vegetable	Blood purifier removes toxins from the body.	Infusion
<i>Brassica oleracea</i> L./Brassicaceae	Cabbages (C)	Herbaceous	1	0.42	Bulb/leaves	Seasoning and preservative	slight cooking enhance flavour	Infusion
<i>Carissa bispinosa</i> (L.) Desf. ex Brenan/Apocynaceae	Isabetha (Z)	Shrub	1	0.42	Fruits	Flavouring and preservative	Treating chest pain, anti-viral	Infusion
<i>Carpobrotus edulis</i> L./Aizoaceae	Unomatyumtyum (X)	Herbaceous	1	0.42	Leaves/Fruits	Flavouring and preservative	Topical/to treat skin infection	Infusion
<i>Capsicum annum</i> L./Solanaceae	Ikhanakhana (X) Pelepele(X)/Chilli pepper	Herbaceous	15	6.36	Fruits	Seasoning and preservative	Deworming, bronchitis, arthritis, diabetes, fatigue, and sore throats	Decoction
<i>Citru limon</i> (L.)Burm.F./Rutaceae	Lemon (C)	Herbaceous	5	2.12	Fruits	Flavouring and preservative	Blood cleanser, diuretic	Infusion
<i>Clausena anisata</i> (Willd.)Hook.F.ex Benth/Rutaceae	Umtuto (X)	Shrub	5	2.12	Leaves	Flavouring and preservative	Antimalarial, analgesic	Infusion
<i>Clematis brachiata</i> Thun./Ranunculaceae	Ityolo (X)	Climber	1	0.42	Leaves	Flavouring and preservative	To treat sexually transmitted disease	Infusion
<i>Chenopodium album</i> L./Amaranthaceae	Imbikicane (X)/Epazote	Herbaceous	1	0.42	Leaves	Leafy vegetables	Anthelmintic, toxic inlarge quantity	Infusion
<i>Coddia rudis</i> (E.Mey.ex Harv.)Verdc./Rubiaceae	Intsinde (X)	Shrub	1	0.42	Twig, fruits	Flavouring and preservative	Treat stomach related ailments	Infusion
<i>Cucurbita pepo</i> L./Cucurbitaceae	Imithwane (X)/Pumpkin (C)	Herbaceous	1	0.42	Leaves	Leafy vegetable	To treat arthritis, blood booster	Decoction
<i>Cymbopogon citratus</i> (DC) Stapf./Poaceae	Umqungu (X)/Lemon grass (C)	Herbaceous	2	0.848	Leaves	Flavouring and preservative	Analgesic, anti depressant, antimicrobial	Infusion
<i>Daucus carota</i> L./Apiaceae	Carrot (C)	Herbaceous	2	0.848	Fruits	Seasoning and preservative	Stimulant, tonic and vermifuge	Infusion
<i>Euphorbia hypericifolia</i> L./Euphorbiaceae	Umaphipha (X)/Graceful Spurge (C)	Herbaceous	3	1.27	Leaves	Seasoning and preservative	Used in combination with <i>Bryophyllum pinnatum</i> and <i>Opuntia stricta</i> to treat gonorrhoea	Infusion
<i>Foeniculum vulgare</i> Mill./Apiaceae	Imbambosi (X)/Fennel (C)	Herbaceous	1	0.42	Leaves and seeds	Seasoning and preservative	Gastrointestinal pains,digestive aid,carminative, expectorant, mild stimulant and colds	Infusion or Decoction
<i>Helichrysum gymnocomum</i> DC./Compositae	Imphepho (X)	Herbaceous	1	0.42	Leaves	Leafy vegetables	Leaves used to treat ulcer	Infusion

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