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# Herbal medicine acceptance, sources and utilization for diarrhoea management in a cosmopolitan urban area (Thika, Kenya)

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## Abstract

The use of herbal remedies is usually perceived as a rural phenomenon, hence it is usually not clear whether they are an accepted mode of healthcare system in urban areas. This study aimed at investigating the role of herbal medicines in managing diarrhoea in an urban centre, document important plants utilized and their conservation status. The results indicate that diarrhoea is a serious problem in Thika urban slums. Ninety-eight per cent in the study area had suffered had suffered diarrhoea in the recent past (during the last 1 year). In regard to the mode of treatment sought for this condition, 97.45% had used herbal preparations. The majority (52.5%) first seek treatment for diarrhoea from herbalists before going to the hospital. More people (23.7%) in the study area seek herbal preparations for diarrhoea management because they consider them more effective than biomedicines, compared with 13.2% who opt for the herbal concoctions because they are cheap. A large diversity of species (41 species in 25 families) is used in diarrhoea management. The most common plants include *Senna didymobotrya* (Fresen.) Irwin & Barney, *Physalis Peruvian* L., and *Cucurbita maxima* Lam. Most of these are obtained from wild habitats, hence their conservation status needs to be addressed.

*Key words:* antidiarrhoeal remedies, phytotherapy, primary health care

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## Introduction

Traditional medicine has, for centuries, been used in the management of diseases by man (Orwa, 2003; Barbour *et al.*, 2004). Early man observed consistencies in the

patterns of natural phenomena and in this context discovered that some plants could be useful for food, be poisonous or possess healing properties (Figueiredo, 1996). In most African countries the majority of traditional healers are illiterate or semi-illiterate and transmit knowledge about medicinal plants and other indigenous knowledge orally. The Kenyan population comprises a diverse and rich cultural mix of different ethnic groups. Each ethnic group has unique knowledge about medicinal plants (Njoroge, 2003).

The upcoming generations of younger people are losing touch with this knowledgeable folk due to rapid modernization, hence putting the indigenous knowledge at risk of disappearing. The medicinal plants themselves are at risk due to habitat destruction and unsustainable rates of exploitation, among other factors (Njoroge, 2003). An important step in conserving traditional medicinal knowledge is the inventorization of plants with therapeutic value and knowledge related to their use in systematic ways (Tabuti, Lye & Dhillion, 2003). It becomes necessary for ethnobotanists, therefore, to work with the traditional healers and other knowledgeable local people to document and authenticate the medicinal value of the local flora.

In Kenya, from the early 1990s, there was a period of economic decline, rapid population increase and the emergence of new diseases, notably HIV/AIDS as well as related opportunistic illnesses and the re-emergence of formerly controlled diseases. The high poverty levels and increased disease burden seem to have outstripped the diminishing resources available to ensure access to basic health care for all Kenyans (Mboya, 2003), often resulting in people seeking affordable traditional medicines.

Diarrhoea is a common problem affecting most of the developing countries and is identified as a major opportunistic disease among HIV/AIDS patients (Kone *et al.*, 2004). Worldwide intestinal infections are the common causes of

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diarrhoea responsible for 3–4 million deaths annually (Farthing, 2000; Ryu *et al.*, 2004). In some countries many patients with HIV and chronic diarrhoea have turned to

herbal formulas for help (Cohen *et al.*, 2000). Studies have demonstrated the efficacy of such preparations for the treatment of diarrhoea (Cox & Balick, 1994).

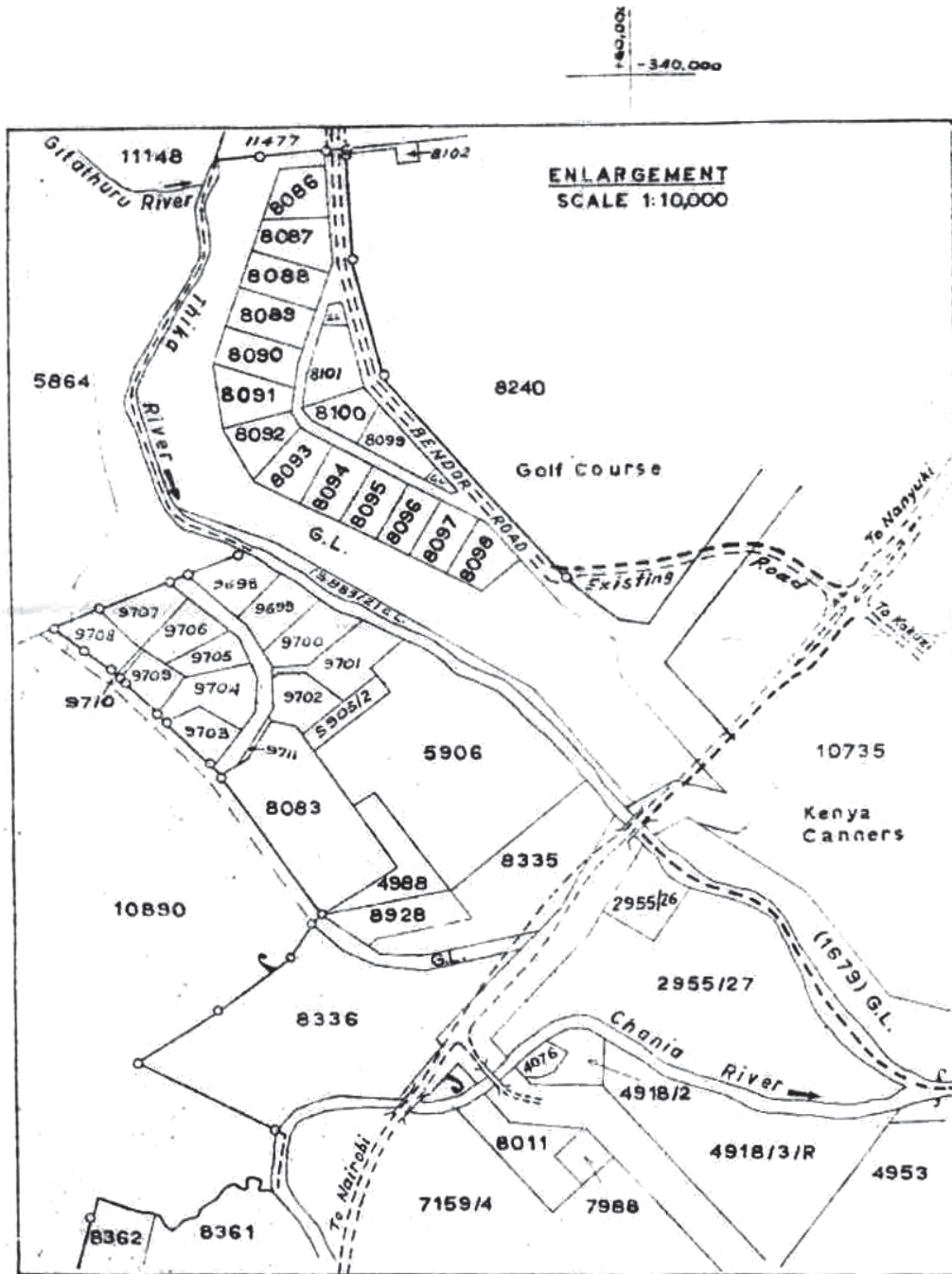


Fig 1 Map of Thika where field work was carried out

## Materials and methods

### Study area

Thika is located in the Central Province of Kenya (Fig. 1). It is a cosmopolitan industrial town with a population of

about 800,000 people. The town has a major slum, which carries a third of Thika's total population (about 26,000 people). Being the second hardest hit district with HIV/AIDS infections in the country, it was an ideal study area for traditional anti-diarrhoea phytotherapeutics. The pre-

**Table 1** Diversity of plant species used in diarrhoea management in Thika (Kenya) (local names are in Kikuyu unless otherwise stated)

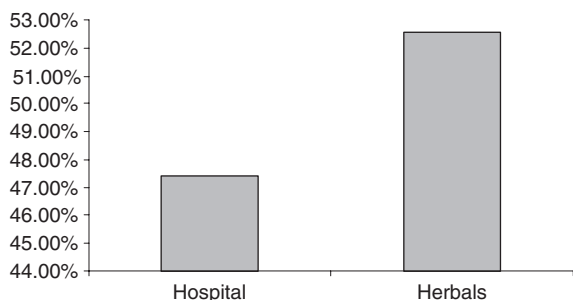
Species name	Family name	Local name	Part used
<i>Allium sativa</i> Rehb.	Liliiflorae	Kitunguu saumu (Kiswahili)	Bu
<i>Aloe kendongensis</i> Reynolds	Aloaceae	Kĩĩruma	S
<i>Amaranthus hybridus</i> L.	Amaranthaceae	Terere	L
<i>Mangifera indica</i> L.	Anacardiaceae	Mũembe	L
<i>Carissa edulis</i> (Forssk.) Vahl	Apocynaceae	Mũkawa	L, B
<i>Aspilia pluriseta</i> Schweinf.	Asteraceae	Muutĩ	L
<i>Bidens pilosa</i> L.	Asteraceae	Mũchege	L
<i>Sonchus oleraceus</i> L.	Asteraceae	Mũthũũnga	R
<i>Spinacea oleracea</i> L.	Asteraceae	Cibinangi	L
<i>Tagetes minuta</i> L.	Asteraceae	Mũbangi	S
<i>Vernonia lasiopus</i> O. Hoffm.	Asteraceae	Mũcatha	L
<i>Brassica oleracea</i> L.	Brassicaceae	Kabici	L
<i>Erucastrum arabicum</i> Fisch. & Mey.	Brassicaceae	Mũtogotia	R
<i>Caesalpinia volkensii</i> Harms	Caesalpiniaceae	Mũbũthĩ	F, B, R
<i>Cassia abbreviata</i> Oliv.	Caesalpiniaceae	Musoko (Taita)	L, B
<i>Senna didymobotrya</i> (Fresen.) Irwin & Barney	Caesalpiniaceae	Mũenũ	B, S, L, SD
<i>Warbugia ugandensis</i> Sprague	Canellaceae	Mũthĩga	L, R, B
<i>Carica papaya</i> L.	Caricaceae	Mũbabaĩ	F, SD
<i>Cucurbita maxima</i> Lam.	Cucurbitaceae	Marenge	SD, L, F
<i>Bridelia micrantha</i> (Hochst.) Baill.	Euphorbiaceae	Mũkoigo	L
<i>Croton megalocarpus</i> Hutch.	Euphorbiaceae	Mũkindũri	L, B, R
<i>Ricinus communis</i> L.	Euphorbiaceae	Mbarĩki	L, F
<i>Dovyalis abyssinica</i> (A.Rich.) Warb.	Flacourtiaceae	Mũkambura	F
<i>Strychnos henningsii</i> Gilg	Laganiaceae	Mũteta	B, L
<i>Ajuga remota</i> Benth.	Lamiaceae	Wanjirũ wa rũriĩ	L, LR, B
<i>Azadirichta indica</i> A. Juss.	Meliaceae	Mwarũmbaine	R, L, B
<i>Ficus thonningii</i> Bl.	Moraceae	Mũgũmo	L, B, R
<i>Musa paradisiaca</i> L.	Musaceae	Marigũ	F
<i>Psidium guajava</i> L.	Myrtaceae	Mũbera	L, F
<i>Tephrosia vogelii</i> Hook.f.	Papilionaceae	Musoko (Taita)	L, B
<i>Erythrina abyssinica</i> DC	Papilionaceae	Mũhũũtĩ	L, B, R
<i>Prunus Africana</i> (Hook.f.) Kalkm.	Rosaceae	Mũiri	L, B
<i>Citrus limon</i> (L.) Burm. f.	Rutaceae	Mũtimũ	F
<i>Zanthoxylum gillettii</i> (De Wild.) Waterm.	Rutaceae	Mũchagatha	SD, L, B
<i>Datura stramonium</i> (L.)	Solanaceae	Magũrũkia	R
<i>Physalis peruviana</i> (L.)	Solanaceae	Mũnathi	S, B, F, L, R
<i>Solanum incanum</i> (L.)	Solanaceae	Mũtongu	R
<i>Solanum nigrum</i> (L.)	Solanaceae	Managu	L
<i>Urtica massaica</i> Mildbr.	Urticaceae	Thabai	L
<i>Lantana camara</i> (L.)	Verbenaceae	Kagiri/mũkigĩ/mũkenia	YL
<i>Lippia javanica</i> (Burm.f.) Spreng	Verbenaceae	mũthoroti	L

B, bark; Bu, bulb; YL, young leaves; F, fruits; S, sap; SD, seeds; R, roots; L, leaves.

valence of this pandemic in Thika is over 35% with hospital bed occupancy of over 60%, the highest in the province (Ministry of Finance and Planning, 2000, 2002).

*Data collection*

An ethnobotanical survey was carried out mainly in Kiandutu and Kiang’ombe slums in Thika urban area to collect information on the usage of traditional medicine and the plant species most commonly used in the treatment of diarrhoeal infections. This survey was conducted through interviews using a semi-structured questionnaire as well as detailed personal discussion with the herbalists and the slum dwellers (Cunningham, 2000). In total, 42 people were interviewed including people who use anti-diarrhoea herbal remedies for self-medication, traditional healers as well as those who consult traditional healers for the management of diarrhoea. It was important to focus on the behaviour of respondents regarding the use of herbal medicines in diarrhoea management so as to establish the attitude of users.



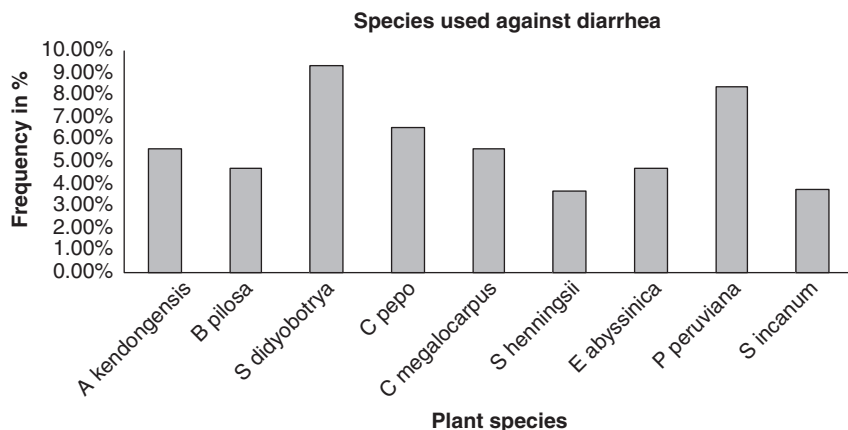
**Fig 2** First action taken during diarrhoea sickness in Thika

Plant species cited in the survey were collected, identified and voucher specimens preserved at the Jomo Kenyatta University of Agriculture and Technology, Botany Department Herbarium.

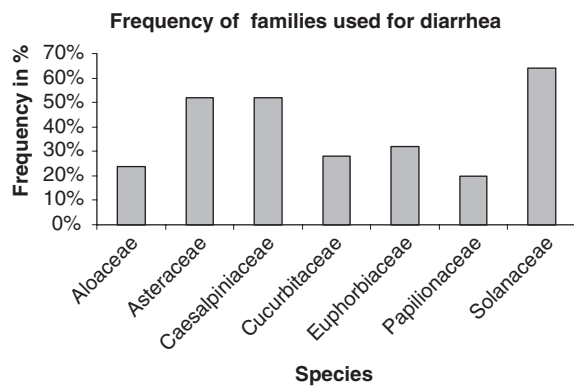
**Results and discussion**

This study realized 41 species in 25 plant families as important species in diarrhoea management in Thika (Table 1). Some of these species do not have Kikuyu local names, which is the local dialect in the study area. Scrutiny of their distribution shows that some are obtained from outside the study area, confirming the cosmopolitan nature of the region. A look at the growth habits of the plants used for diarrhoea management in this region shows that 63.4% are trees or shrubs while 36.6% are herbs. Most of the harvested plants grow in the wild (63.4%), 17% are semi-wild (wild but sometimes deliberately allowed to grow on farm edges) while only 19.5% are cultivated.

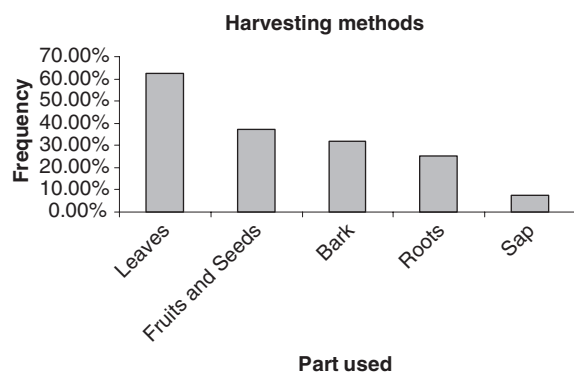
The incidence of diarrhoea among respondents indicated that this is a major health problem in the study area. A large proportion of the respondents (98%) were found to have suffered diarrhoea in the recent past (during the last 1 year), with only 2% of the respondents having been free of the problem. These data indicate the high prevalence of this disease in this region. Data on the incidence previously obtained from hospitals may not be accurate as some of the diarrhoea victims might never have visited the hospitals for treatment. Consequently, herbal medicine plays an important role in the provision of health care, specifically in managing diarrhoea in this community. Effectiveness and cost were given by the respondents as the main rea-



**Fig 3** Frequency of use for various plant species in treatment of diarrhoea in Thika (Kenya)



**Fig 4** Plant families commonly used in the management of diarrhoea in Thika (Kenya)



**Fig 5** Harvesting methods for plant species used in diarrhoea management in Thika (Kenya)

sons for the use of herbal medicines in diarrhoea management. As more people use herbal concoctions due to their efficacy, it is possible to conclude that local people trust the herbal medicines – an indication of their effectiveness. Efficacy tests are however necessary as part of further work.

Results on the behaviour in seeking medical help for the treatment of diarrhoea in Thika show that more people (52.5%) use herbal medication first before they visited the hospital (Fig. 2). Respondents were interviewed as they bought traditional medicines in the urban markets. More people (23.7%) use herbal concoctions because they consider them effective while only 13.2% use them because they are cheap.

Investigations into the plant species that are frequently used in diarrhoea management in Thika showed that there were about nine species that were common (Fig. 3) in this

pharmacopeia. Three of the most common species were *Senna didymobotrya*, *Physalis peruviana* and *Cucurbita pepo*. A look at the main plant families commonly used revealed seven major families. Of these, the commonest were Asteraceae, Caesalpinaceae and Solanaceae (Fig. 4). The pharmacological significance of these plant families in possessing antidiarrhoeal properties needs to be investigated.

This study reveals that a large proportion of the antidiarrhoeal herbal medicines are obtained from perennial plant parts such as roots, tubers, stems and reproductive structures such as flowers and seeds (Fig. 5). Destructive harvesting is known to threaten plant populations or species viability (Tabuti *et al.*, 2003). As the majority of the species are harvested destructively, quantitative data are necessary as a follow up to this study so as to determine the extent of unsustainable harvesting intensities. Such data would be helpful in prioritizing plants that need serious conservation strategies.

Antidiarrhoeal properties can be explained in part by the presence of tannins due to their antiseptic and vasoconstrictor effects. Tannins also form protective layers on the skin and mucous membranes. Other important antidiarrhoeal substances include astringent phenolic compounds, triterpenoids and saponins (Van Wyk, Oudtshoorn & Gericke, 2002). Studies are underway to establish the antibacterial efficacies of crude and fractionated extracts from these plants against the main diarrhoea-causing micro-organisms.

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