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**ISSN 0189-6016©2008**MARKET SURVEY OF *MONDIA WHYTEI* (MULONDO) ROOTS IN KAMPALA CITY,  
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**Abstract**

This study explored the consumers' and vendors' perceptions about *Mondia whitei* roots, in Kampala city, Uganda; determined the marketing margins and the market flow of the roots in the city; documented demand and supply opportunities as well as challenges to marketing of the roots by the vendors. Seventy vendors and 70 consumers of the roots were administered with semi-structured questionnaires. Results showed that *M. whytei* roots are largely perceived as sexual stimulant, appetiser, flavours for food and drinks, and stimulant for milk production in lactating mothers. Majority of the vendors (74%) and consumers (85%) perceived the trade in the roots as worthwhile. Men and adolescent boys were reported to be the main consumers. Retailers who buy the roots directly from collectors and later sell to consumers dominate the trade. The average price charged per piece and a kilogram of roots increases from collectors, middlemen and to the retailers. The average retail price was US \$ 0.12 per piece of the root and US \$ 1.50 per kg of the roots. Collectors charged the lowest price (US \$ 0.06 and US \$ 0.60 per piece and a kilogram of the roots respectively) though their profit margins remained the highest (50%). Several demand and supply opportunities exist for *M. whytei* roots and these included few sexual stimulant accepted alternatives to *M. whytei* roots in Kampala city; consumers' willingness to pay high prices when the roots are scarce, and a large number of *M. whytei* roots gatherers that could promote the cultivation of this plant for the market. Challenges, such as seasonal low supply of the roots, and unorganised market structure, hamper the trade in *M. whytei* roots. There is a need for experimental research on efficacies of the perceived uses of the roots reported in this study. The possibility of value addition to the roots sold should be investigated.

**Key words:** *Mondia whytei*, Markets, trade, sexual stimulant, medicinal plants, Uganda

**Introduction**

Most developing countries are endowed with vast resources of medicinal and aromatic plants. These plants have been used over the millennia for human welfare (Cunningham, 1997). Recent interest and demand for such medicinal plants stems from a realization by bodies such as the World Health Organization (WHO), the Food and Agriculture Organization (FAO) and others that nearly 90% of the world's rural population has been kept in reasonable health due to an almost exclusive reliance on wild medicinal plants (Cunningham, 1993; 1997). World Health Organisation's commitment towards the end of last century to improve the health conditions of all people under the "Health for All by the Year 2000" called for a serious assessment of the role that herbal medicines play in the attainment of this noble objective. However, existence of many of such medicinal plant species like *Mondia whitei* (Hook. f) Skeels in the tropics is under threat mainly because of irrational use and the absence of effective policies that could guarantee their sustainable management.

*M. whitei* (Hook. F) Skeels popularly known in central Uganda as *Mulondo* is a medicinal plant found in the tropics from West Africa to eastern and southern Africa. It is an herbal climbing plant popularly linked to the management of impotence problems. A study by McGeoch (2004), showed that the root of *M. whytei*, is highly valued as flavouring and an appetiser, and it is also a good source of vitamins and minerals. The roots are also linked to the management of diabetes and hypertension. In Uganda, there is information (Eilu et al., 2007) that *M. whytei* is being conserved outside protected areas in Tororo District, eastern Uganda for its medicinal properties.

In Kenya, *M. whytei* is largely harvested from the Kakamega Forest. There is information that the supply of *M. whytei* is being threatened by over-harvesting (Watai, 2003). Recently, however, a number of organisations including the Kenya Forestry Research Institute have introduced a programme to train people in awareness and conservation of *Mondia* in the forest (CTA, 2007). The programme, which is called KEEP (Kakamega Environmental Educational Programme), has introduced the cultivation of *Mondia*, and the roots of the plant are now being sold by the farmers, for production of a powder which has both medicinal and nutritional benefits (CTA, 2007).

There is also information (Mukonyi et al., 2002; Watai, 2003) that scientists from developed countries have great interest in this herbal plant (*M. whytei*), and that some scientists are engaging in biopiracy because of the herb's many curing properties. But the belief that the herb enhances desire for sex together with its flavouring properties and ability to manage STDs seems to be the cause why there is a growing market for it roots in East Africa (McGeoch, 2004). Due to the high demand of the herb for such purposes, it has been classified in Eastern Africa as one of the endangered species needing protection (McGeoch, 2004).

Elsewhere, the South African government is currently fighting to save the plant from extinction. In Pretoria region, the plant is a protected species. And through the use of biotechnology techniques, South African scientists are trying to reproduce as many seedlings as possible through tissue culture (Okwemba, 2002). Studies funded by African Academy of Sciences and conducted by Prof Isaiah Ndiege of Kenyatta University and Kavaka put *M. whytei* in number one slot as a medicinal plant that can fetch more money for people in Western Kenya than any other herb (Okwemba, 2002; Watai, 2003). In order to ensure the sustainable use of this herbal medicinal plant, it is necessary therefore to have empirical information about its status, ethno-uses and the market. In this study, the consumers' and vendors' perceptions about *M. whytei* roots traded in Kampala city, Uganda are presented. Additionally, the marketing margins, marketing chain and flow of the roots in the City are explored. Demand and supply opportunities as well as challenges to marketing of roots by vendors in the City are also documented.

## Materials and Methods

### Study area

The study was carried out in Central Division of Kampala City. The city is situated almost in the middle of the country covering a surface area of 195 sq. km (UDI, 2005). It lies between latitude 0°19' N and longitude 32°35' E (KDSOER, 1997). It has a bi-modal rainfall regime with peaks being March to May and September to November. The mean annual rainfall ranges between 1750 mm to 2000 mm. The temperature is moderately high with a minimum of about 17°C and a maximum of about 28°C. The major economic activity in city is trade. According to Uganda Bureau of Statistics (2005), Kampala city has a population of 1.2 million people but the city has a daily transient population of about 2.3 million people. The city population growth rate is at 3.9% (average density: 51 in/ha). About 39% of the population in the city lives in absolute poverty and 43% of the population are unemployed (Uganda Bureau of Statistics, 2005).

### Study procedure

Prior to the main study, reconnaissance tour was made to all the five divisions of Kampala city namely: Central, Kawempe, Makindye, Lubaga and Nakawa in order to select the division with the highest concentration of vendors trading in *M. whytei* roots. The reconnaissance tour also helped in testing the completeness of the research instrument. The main study was undertaken in Central Division where a total of 70 vendors trading in *M. whytei* roots and 70 consumers (buyers) of *M. whytei* roots were interviewed using semi-structured questionnaires. In the division, vendors were selected on the basis of their having been in business for at least a year while consumers were selected on basis of their willingness to be interviewed. Vendors were selected randomly and were only included in the sample if they met the above criterion. Those who fulfilled the criterion but did not want to be interviewed were replaced using a random approach. Seventy vendors were interviewed in all, representing 30% of all the vendors selling *M. whytei* roots in the division. The total number of vendors in the division was determined on the basis of vendors' own estimates.

Two research assistants that were trained in how to administer questionnaires in form of face-to-face interviews helped in conducting interviews. The interviews covered the marketing channels of *M. whytei* roots, consumers' and vendors' perception about *M. whytei* roots and its trade, demand and supply opportunities and the challenges to marketing of *M. whytei* roots by vendors in Kampala city. Data were coded and analyzed using Statistical Package for Social Sciences (SPSS). The marketing margins for gatherers, middlemen and retailers were computed using the following formulae (Jagwe, 1999; Shrivastava and Ranadhir, 1995). Gatherers' Margin (GM) = (GP/RP) x 100%; Retailers' Margin (RM) = (RP-MP/RP) x 100%; Middlemen's Margin (MM) = (MP-GP/RP) x 100%, where GP is the Gatherers' Price; RP is the Retailers' Price and MP is the Middlemen's Price.

## Results

### Demographic characteristic of vendors and consumers of *Mondia whytei* roots in Kampala city

The demographic characteristics of the vendors and consumers interviewed are presented in Table 1. Fifty percent of the vendors were males and the other 50% females. Majority (55%) of the vendors were aged between 20 to 40 years. Thirty-five percent were less than 20 years old and the rest were above 40 years of age. About 58% of vendors were married, 18% were never married (single) and the rest were either widowed/widower or divorced. The majority (78%) of the vendors had attained primary level of education and only 5% had no formal education.

Most (74%) of the consumers interviewed were males. Fifty three percent of this group were aged between 20 to 40 years. Forty-one percent were less than 20 years old and the rest were above 40 years of age. About 71% of consumers were married, 23% were never married (single) and the rest were either widow/widower or divorced. The majority (44%) of the consumers had attained tertiary level of education, 39% had secondary level and only 2% had no formal education.

**Table 1:** Socio-demographic characteristics of the respondents

Variable	% response	
	Vendors	Consumers
<i>Sex</i>		
Male	50	74
Female	50	26
<i>Age (years)</i>		
< 20	35	41
20-40	55	53
> 40	10	6
<i>Marital status</i>		
Married	58	71
Single (Never married)	18	23
Widow/widower	14	2
Divorced	8	4
<i>Education level</i>		
No formal education	05	02
Primary	78	15
Secondary	17	39
Tertiary	00	44

### **Consumers' and vendors' perceptions about *Mondia whytei* Perceived uses and trade in the roots**

When asked about the perceived uses of the *M. whytei* roots, majority of the vendors (98%) and the consumers (94%) seemed convinced that root has an aphrodisiac effect that it is popularly chewed as a sexual stimulant. Equally important about 79% of the vendors and 83% of the consumers respectively said the *M. whytei* roots are prevalently used as an appetizer. Other perceived uses of the roots included flavouring agent for food and drinks, stimulant for milk production in lactating mothers, clearing hangovers from beers, controlling stomachache and stomach worms, managing allergy problems and assuaging diabetes (Table 2). The trade in *M. whytei* was generally perceived to be worthwhile by both vendors and consumers. In fact many consumers (85%) and vendors (74%) believe that trade in the roots is valuable (Table 2).

### **Availability of the roots, perceived status of the plant and sources of harvest**

The majority of the vendors (92%) and consumers (90%) reported that *M. whytei* roots traded in Kampala City are largely collected from the forests. However, some respondents also said the roots are collected from fallow and cultivated lands (Table 2). Generally the roots are perceived by vendors (69%) and consumers (77%) to be available in both dry and wet seasons of the year. Knowledge about the status of the *M. whytei* plants from the sources of harvest was difficult to conceive by both vendors and consumers of the roots. But generally the majority of the vendors (39%) and consumers (43%) envisaged the plant to be endangered because the whole plant is often uprooted when the roots are being harvested (Table 2).

### **Main consumers of the *Mondia whytei* roots**

Generally vendors reported that men (88%) and adolescent boys (85%) were the main buyers and consumers of the *M. whytei* roots (Table 2) in Kampala city. When asked about the main buyers and consumers of the roots, consumers who were interviewed had also the similar feeling that men (83%) and adolescent boys (74%) were the main consumers of *M. whytei* roots in Kampala. An appreciable number of vendors and consumers said the women and adolescent girls also do consume the roots (Table 2). Vendors reported that women and girls often shy away from buying the roots fearing intimidation from menfolk.

### **Market margin, marketing chain and flow of *Mondia whytei* roots in the City**

Trade in *M. whytei* roots were mainly characterized by retailers (88%) who buys the roots directly from collectors and later sell to consumers. Some retailers (51%) also buy the roots from the middlemen and then sell to consumers. About 38% of the vendors said they sometimes gather the root themselves or have family members to gather the roots for them from the forests (Figure 1). More than 50% of the respondents reported that the bulk of *M. whytei* roots sold in the city are coming in from forested areas in Central Uganda (Figure 2). Other said the roots were being brought into the city from Eastern Uganda, Western Uganda, South-western Uganda and Western part of Kenya (Kakamega area). The average price per piece of the root (diameter: 0.01 – 0.02 m; length: 0.3 – 0.4 m) and a kilogram of roots increases from collectors, middlemen to the retailers. The average retail price was US \$ 0.12 per piece of the root and US \$ 1.50 per kg of the roots (Table 3). Collectors charged the lowest price (US \$ 0.06 per piece of the root and US \$ 0.60 per kg of the roots) although their profit margins remained the highest (50%).

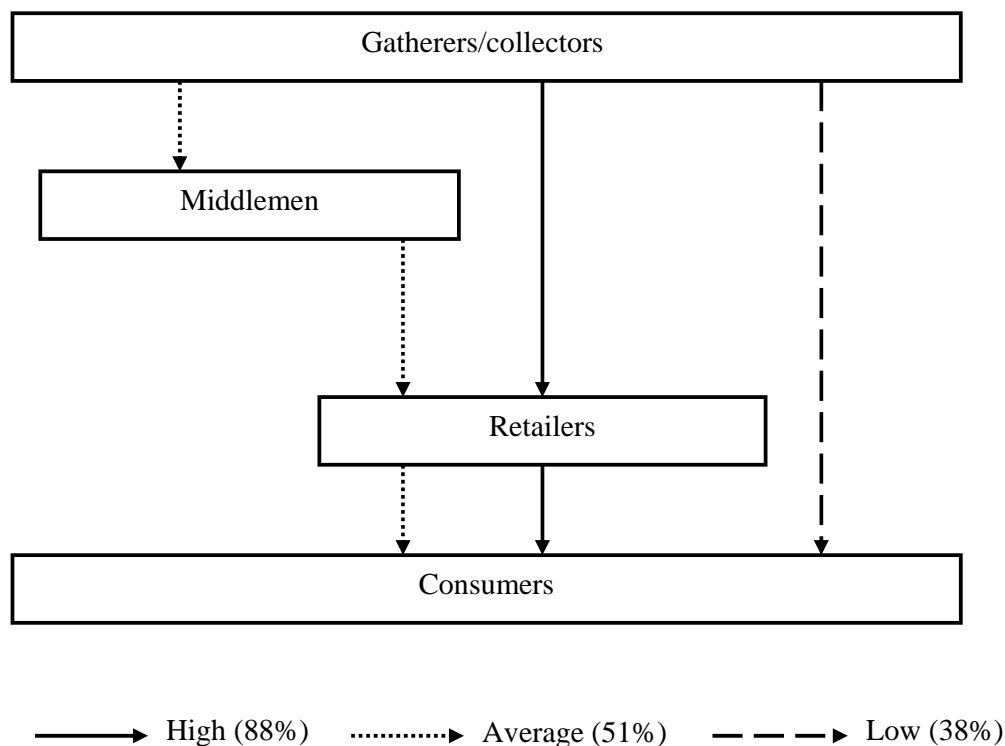
**Table 2:** Consumers' and vendors' perceptions about *Mondia whytei* (Mulondo)

Variable	% response	
	Vendors	Consumers
<i>Perceived uses of the roots</i>		
Sexual stimulant	98	94
Appetizer	79	83
Flavouring agent for food and drinks	72	66
Stimulate milk production in lactating mothers	69	58
Clears hangovers	55	60
Control stomachache and stomach worms	48	52
Manages many allergy problems	46	29
Assuage diabetes	35	10
<i>Trade in roots</i>		
Worthwhile	74	85
Not worthwhile	26	15
<i>Quantity of the roots (Kg) traded per month</i>		
< 25	53	-
25 – 50	42	-
> 50	5	-
<i>Availability of the roots</i>		
Dry and wet seasons of the year	69	77
Mostly in wet seasons	31	23
<i>Sources (place of harvest)</i>		
Forests	92	90
Fallow land	24	18
Cultivated	12	4
<i>Perceived status of the plant</i>		
Endangered	39	43
Vulnerable	33	20
Rare	16	10
Don't know	12	37
<i>Main consumers of the roots</i>		
Men	88	83
Adolescent boys	85	74
Women	56	48
Adolescent girls	32	25

### Demand and supply opportunities of *Mondia whytei* roots in the City

The demand and supply opportunities of *M. whytei* roots trade in Kampala city are promising (Table 4). Most (55%) of the vendors interviewed said that there are few sexual stimulant accepted alternatives to *M. whytei* roots in areas around Kampala city. Other demand opportunities included consumers' willingness to pay high prices for the roots when they are scarce. On the other hand, the supply opportunities reported by the vendors included a large number of (53%) *M. whytei* roots gatherers that could promote the cultivation of plants for the market; availability of *M. whytei* in remote forest areas; increasing number of middlemen who volunteer

to rural areas to buy the roots from the gatherers and lastly, increasing availability of *M. whytei* roots supply from changing land-use such as cultivated land.



**Figure 1:** Marketing of *Mondia whytei* roots in Kampala city

**Table 3:** Average prices and marketing margins for gatherers, middlemen and retailers involved in trading *M. whytei* roots

Variable	One piece of <i>M. whytei</i> root (diameter: 0.01 – 0.02 m; length: 0.3 – 0.4 m)	1 kg of <i>M. whytei</i> roots
Gatherers' average price (GP) (Ug.Shs)	100 (≈ US \$ 0.06)	1, 000 (≈ US \$ 0.60)
Middlemen's average price (MP) (Ug.Shs)	150 (≈ US \$ 0.09)	2, 000 (≈ US \$ 1.20)
Retailers' average price (RP) (Ug.Shs)	200 (≈ US \$ 0.12)	2, 500 (≈ US \$ 1.50)
Gatherers' margin (%)	50	
Middlemen's margin (%)	25	
Retailers' margin (%)	25	

**Table 4:** Demand and supply opportunities of *Mondia whytei* roots in the City

Variable	% response
<i>Demand opportunities</i>	
There are few sexual stimulant accepted alternatives to <i>M. whytei</i> roots	55
There is willingness of the consumers to pay high prices for <i>M. whytei</i> roots when they are scarce	47
There is strong prospect of a growing market of <i>M. whytei</i> roots	38
Demand of <i>M. whytei</i> roots is relatively unresponsive to price changes	12
<i>Supply opportunities</i>	
A large number of <i>M. whytei</i> roots gatherers that could promote the cultivation of <i>M. whytei</i> for the market	53
Availability of <i>M. whytei</i> plants in remote forests	30
Increasing number of middlemen who go to rural areas to buy the roots from the gatherers	28
Increasing availability of <i>M. whytei</i> roots supply from changing land-use such as farmland)	22

### Challenges to marketing of *Mondia whytei* roots by vendors in the City

Amidst the demand and supply opportunities, numerous challenges, such as unorganised market structure, low supply of the roots in some seasons, limited market information, limited knowledge of chemical properties of *M. whytei* roots, and lack of appropriate value-adding technologies, hamper the trade in *M. whytei* roots in city (Table 5). There is need to address these challenges if the vendors are to meaningfully gain from the business.

### Discussion

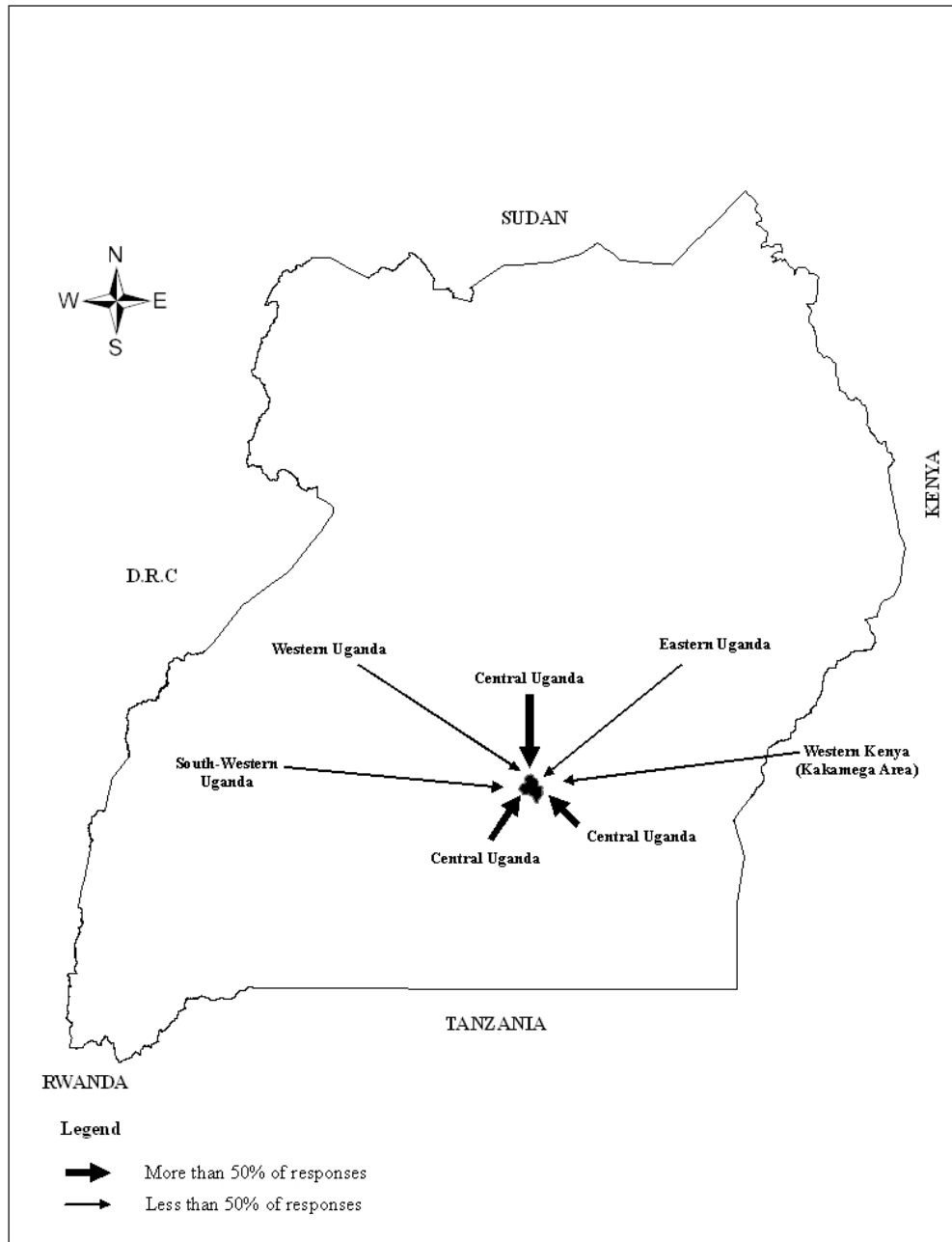
The roots of *M. whytei* plant is widely chewed by many people in Kampala, Uganda. The roots are largely valued as sexual stimulant, appetiser, flavours, and a stimulant for milk production in lactating mothers. Chewing the roots is also believed to help clear hangovers from beers as well as controlling stomachache. A

**Table 5:** Challenges to marketing of *Mondia whytei* roots by vendors in the City

Challenges	% response
Unorganised market structure (No fixed market location)	87
Low supply of the roots in some seasons of the year	63
Limited market information	60
Limited knowledge of chemical properties of <i>M. whytei</i> roots	58
Lack of appropriate technology to add value to the roots	55

report by Kamatenesi-Mugisha (2002) also show that the roots of *M. whytei* are valued and used as an aphrodisiac for males and for improving female sexuality (women's Viagra) in most areas of Uganda particularly in urban centres and the Kampala City. To date, *M. whytei* has been an old traded medicinal plant in most part of Kampala. Elsewhere, *M. whytei* roots are reportedly used for treating gonorrhoea and impotence, and also for contracting the uterus in women after delivery (Maundu et al., 1999). It is also mixed with porridge to prevent baby rash (Chirchir, 2002). From the present study, it is estimated that over one tonne of *M. whytei* roots are consumed every month in Kampala city. Men and adolescent boys are the main consumers although there is a lot of 'hidden' consumption by women and adolescent girls going on in the city. One woman consumer of the

roots had this to say “certain family planning methods are making me loose sexual urge. Chewing this ‘mulondo’ roots therefore help me to keep pace with my husband”.



**Figure 2:** Flow of *Mondia whytei* roots in Kampala city

The trade in *M. whytei* roots in Kampala city is worthwhile although largely informal and underdeveloped, with limited value-adding taking place. The trade is mainly characterized by retailers who buy the roots directly from collectors and later sell to consumers. The average price per piece of the root and a kilogram of roots increases from collectors, middlemen and to the retailers. The average retail price was US \$ 0.12 per piece of the root and US \$ 1.50 per kg of the roots. The average retail price of US \$ 1.50 per kg of *M. whytei* roots is quite comparable to international market rate of US\$ 2.00 per kg of *M. whytei* roots (Kasilo,



2006). There is a common assumption in much of the non-timber forest products literature that traders exploit producers (Neumann and Hirsch, 2000). The findings of this study show that the collectors (gatherers) although charged the lowest price per kilogram of the roots, their profit margins remained the highest. It should however, be noted that these findings is derived from short supply chain transactions in which *M. whytei* roots is sold by a gatherer to a middleman and the middleman sells to a retailer who then sells it to a consumer.

The trade in *M. whytei* roots in the city is undoubtedly associated with local demand. This is a positive factor and a key element in a marketing strategy that could promote the trade in this plant roots. It should also be noted that trade in *M. whytei* roots is partly determined by availability/supply of the roots. In this vein the trade is highly affected by the nature of supply in terms of quantity, time, location, price, and scarcity value (Karaan et al., 2005; Ramadhani, 2002). It is unclear whether the nature of demand is concomitant to this supply, or whether demand is of a more consistent nature like with most food products although this study found out that most consumers were willingness to pay high prices for the roots when they are scarce. The roots are traded in it generic form as and when available with little done to add value and promote trade and consumption. Other challenges, such as low supply of the roots in some seasons of the year, and unorganised market structure, also hamper the trade in *M. whytei* roots in the City.

A key aspect of future research and actions to promote the trade in *M. whytei* roots would be to establish the marketable attributes in defined target markets. Ultimately, any marketing strategy must be premised on selling key attributes to consumers. These attributes must relate to known or latent needs of consumers and thus require good investigation and subsequent promotional activities. There is also, a need for experimental research on efficacies of the perceived uses of the roots reported in this study. This would avail valuable information that could be used in future marketing strategies, tactic and positioning. There is a need to explore alternative marketing channels and formation of local trade groups to streamline the trade in the roots. Establishing appropriate marketing and gatherers/collectors related institutions are essential to entrench more efficient supply and market relations. Promotion of the trade, by trade associations or government agencies should be encouraged. Options for greater value addition to the roots sold must be investigated and exercised. This appears already in progress in the Department of Food Science and Technology, Makerere University and perhaps more collaboration with Department could provide further valuable impetus.

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