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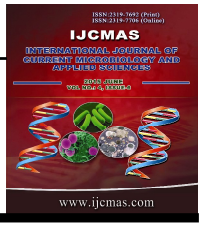

Original Research Article

Assessment the Consumption of *Sonchus cornutus* (Hochst) in Khartoum State, Sudan

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Keywords

Amount of consumption, Contribution to household, Sonchus cornutus, Wild edible plants

A B S T R A C T

Wild edible plants and particularly weeds play an important role in dietary component of many people around the world. Therefore, the aim of this study is to assess and document the consumption of *Sonchus cornutus* (S.C,) as wild edible plants gathered and consumed by many people in Khartoum and other cities in Sudan. The data were collected through personal interview within *S.C.* traders and their responds were recorded in designed forms. Sixty respondents were chosen randomly from three localities. The data collected were analyzed using statistical package for social sciences (SPSS). The results indicated that, majority of respondents that is 86.7% were women and they used *S.C.* as traditional food and as source of income to meet their basic needs. The result showed that 53.3% of traders are illiterate within age between 30 – 45 years old. Also the results showed the S.*C.* is well known among urban community and are consumed in considerable amount. Moreover, many people believe that *S.C.* minimizes some diseases such as blood pressure, malaria and it reduces the level sugar of diabetic patients. Further studies are needed to use S. *cornutus* species as domesticated plants that contribute to food security.

Introduction

Wild edible plants defined as plant species used as sources of food that are neither cultivated nor domesticated but available in their wild natural habitats like rangelands. Wild edible plants continue to be an important dietary component. Also, they are known to make vital contributions to human food stuff. (Schippers, 2002). Nowadays, the consumption of wild edible plants, although often difficult to assess, is still significant at local and global scales (Bharucha and Pretty, 2010). There are few studies on the availability and yield of wild edible plants. Moreover, the consumption of weedy wild vegetables has been poorly addressed, particularly in the Sudan and many valuable plants species are not identified and documented. Given the interest in wild plants consumption for food security, we study the consumption of *S. C* species traditionally consumed by local people in Sudan and provide income for poor people

specially women, this vegetable species are frequently found in local markets in big cities such as Khartoum, some people belief that *S.C.* can treat and decrease a risk of many diseases like blood pressure, malaria and diabetes. Among those wild edible herbs is *S.C,* locally named *Molieta* which contributed to human food in Sudan not only for rural communities, but also for urban communities because of changes of life style due to economical situation. These plants species are characterized by their local availability, growing naturally, mainly consumed raw as salads with low input. The study aimed to assess and document the economic value of *S.C* within local community.

General characteristics of *Sonchus cornutus* species

The scientific name is *Sonchus cornutus* Hochstex oliv and Hierm The synonym is *Launaea cornuta, Launaca exauriculata, Prenanthes somaliensis, and Sonchus oleraceus.* The family is Asteracea Alt. Compositae and the genus is Sonchus. Locally known as Molieta. Nomen number: 451833. Place of publication. D. Oliver, FL.trop. Afr.3:4591877. Name verified on: 03-Jon- 2007. By ARS Systematic Botanists, no species priority site assigned. In Sudan the plant was identified and authenticated by a botanist at the Medicinal and Aromatic Plants Research Institute, National Centre for Research, Khartoum, Sudan.

Morphological description

Annual leafy glabrous herb, emerging from a ground rosette, tap root up to 01 m high. The adult plants stem is glabrous, smooth or slightly striate, hollow. Leaves alternate, the rosette leaves runcinate, acute ate apex. Gradually narrowed towards the base margins sharply denticulate, glabrous, the leaves contain white fluids and are generally bitter in test. stem leaves. Less divided, acuminate at the apex, base amplexicaule. Margins with denticulate segments, glabrous. Petioles absent. Inflorescences terminal, many - flowered panicles with glabrous. Seed oblanceolate, scabrous, lengthwise 10-15 ribbed glabrous, light brown achenes. (Broun *et al*, 1991).

Distribution

Widespread in many African countries, from Ethiopia, Djibouti, and Sudan Westwards to Nigeria and Southwards to Zimbabwe and Mozambique **(**Shumsky, 2014). In Sudan it is distributed and generally in central Sudan that cover vast plain between 30 – 35 Eastern longitudes and 13 – 18 Northern latitudes covered an area about 250000km, also its found in the Southern Kordofan State, Blue Nile and White Nile state, (Broun *et al*, 1991).

Nutritional value

The nutritional composition of young *S. cornutus* leaves is per 100 g edible portion: water 86.8 g, protein 3.9 g, fat 0.9 g, carbohydrate 4.5 g, Ca 214 mg, P 13.2 mg, Fe 7.2 mg, ascorbic acid 18.7 mg (Ndossi & Sreeramulu, 1991).

Methodology

The study was carried out in Khartoum state which lies between longitudes 31º.5 -34º E and latitude 15º-16º N in an area about 28.165 square kilometers. It is bordered on the north and the east side by the River Nile State, on the northwestern side by the Northern State, and on the eastern and southern sides by Kassala, Gedaref and Gezira States, **(**Ministry of Human Development & labour, 2015), the

temperature in summer ranges from 25 to 40 °C. Average rainfall reaches 100– 300 mm anually. The data were collected through interviews using a structured questionnaire and group discussion. Key informant interviews were held within *S.C.* traders. A total of 60 respondents were chosen randomly from three localities namely West Nile locality, Umdorman locality and Jebel Aulia locality, three local markets were selected in each locality, covering the data about age, sex, level of education, economic income, the amount of consumption from trade, place of collecting *S. cornutus*, quantity of consumption and its contribution to household.. Secondary information for the study was obtained from the documents related to the study. These documents included reports, scientific papers, textbooks and handbooks.

Results and Discussion

Ages of respondents

According to the results in table (1) there were significant differences among respondents ages groups, 66.7 % were within age of 36 and 50 years old and only 20% between ages 26 – 35. This may be due to fact that, wild edible plants are less popular among young people, old and middle aged people still retain wide knowledge and collect them. Furthermore, poverty and hunger are forcing them to do this work, and they have no money to trade in other alternatives.

The sex of respondents

The results in table (2) show that majority 86.7% of respondents were women. This may be attributed to the increase in rate of poverty within women, particularly within age 40 and above. Moreover, the majority of respondent comes from rural areas. This can be attributed to civil war and they live near to the schemes round Khartoum. Rural women also use their indigenous knowledge to improve their livelihoods and to meet their basic needs. These data are in agreement with several studies conducted in the Mediterranean area (Pieroni *et al*, 2005) showed that women are the major deposits of wild plant local knowledge.

Marital Status of respondents

The results in table (3) show that the majority of respondents 86.7% were married and have children, while only 13.3% were single, this indicated that the cost of living is increasing for them. Therefore, poverty and economic pressure have force them to look for other sources of income.

The educational level

The study reveals that 53.3 % of the respondents interviewed were illiterate while 41.6% were educated. This shows that the majority of them were poor, furthermore, the high level of illiteracy may attribute to their choice of other occupation, because they have not experienced to do other jobs. Also the increases of illiteracy may be due to fact that the most of respondents come from areas that lack of social services such as lack of good food, inadequate treatment and equipments, lack of education or employment and discrimination against women are some of the numerous factors that contribute to illiteracy.

Economic income from *Sonchus cornutus*

Results in table (5) indicated that 53.3 % of respondents stated that they earned between 61 and 80 Sudanese pounds per day, while 34.4% earned between 40 and 60 Sudanese pounds per day. This shows that the majority of rural dwellers consumed *S. C.* in daily

meal and used it as traditional food that when they migrated to urban. Furthermore, the economic pressures lead many peoples to look for cheaper food to diversify their daily meals. Also the economic earning for traders are quite good for sustaining these jobs, because *S.C.* gathered freely from wild and schemes round Khartoum city. The majority 100% of respondents said they gathered *S.C.* round Khartoum. In addition to that the wide use of *S. C.* may also depend on the fact that it is a vegetable plant, characterized by a rapid growth and closer to people's residences, thus being readily available for collection and consumption.

Consumption of ***Sonchus cornutus*** **per day**

Table (6) shows the amount of consumption per day in Kilograms only 53.3% of respondents said they sell between 20 – 30 Kilograms per day. The considerable amount collected maybe attributed to the availability of *S. C.* near the Khartoum city, also this indicates that the freely gathered *S.C.* is essential and very important and provides households income and food for the households and it enjoys cultural acceptability among the Sudanese community.

Table.1 Ages of respondents

Ages	Frequency	Percentage
10 – 18	5	8.3
19 – 25	3	5
26 – 35	12	20
36 – 50	40	66.7
Total	60	100
Sign.	***	

NS = Not significant (p>0.05). *= Significant (<0.05). **= Highly significant (p<0.001). ***= Very highly significant (p<0.0001).

Table.2 The sex of respondents

Sex	Frequency	Percentage
Female	52	86.7
Male	8	13.3
Total	60	100
Sign	***	

Table.3 Marital status of respondents

Marital Status	Frequency	Percentage
Married	52	86.7
Single	8	13.3
Total	60	100
Sign	***	

Table.4 The educational level

Educational level	Frequency	Percentage
Illiterate	32	53.3
Primary	25	41.6
Secondary	3	5.1
Total	60	100
Sign	***	

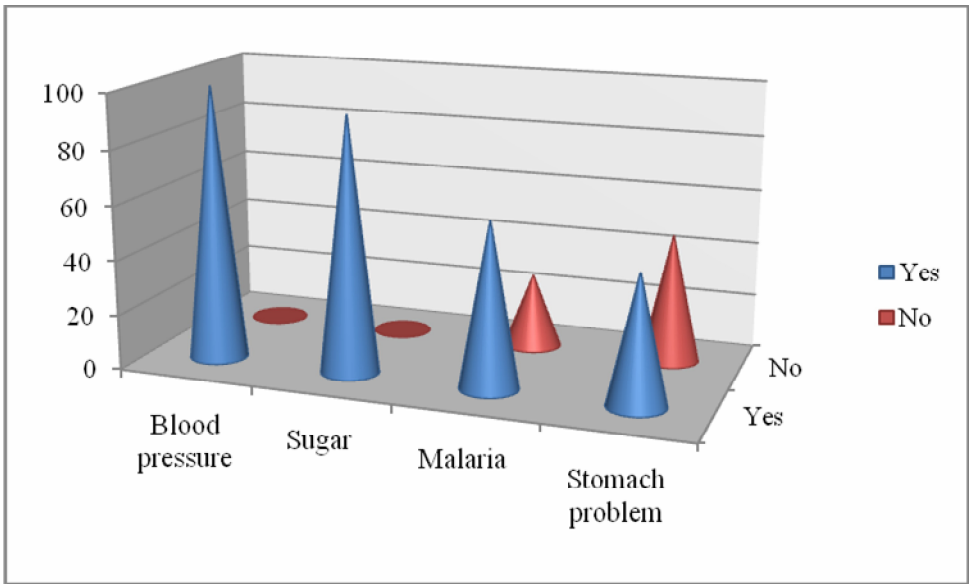
Table.5 Economic income from *Sonchus cornutus*

Economic income	Frequency	Percentage
20 - 40	5	8.3
41 – 60	20	34.4
61 - 80	32	53.3
81 – 100	3	5.1
Total	60	100
Sign	***	

Table.6 Consumption of *Sonchus cornutus* per day

Amount of consumption (Kg)	Frequency	Percentage
10 – 20	20	34.4
21 – 30	32	53.3
31 – 40	8	13.3
Total	60	100
Sign	***	

Figure.1 Uses of *Sonchus cornutus*



Uses of *Sonchus cornutus*

The results in Figure (1) shows that majority 100% of respondents said that they use *S. C* because they believe it can reduce blood pressure, while 93.3% said it can reduce the level of sugar in diabetic patients and minimizes malaria and stomach troubles. The consumption of wild edible plants species as food and for medicinal purposes has been documented in many studies (Hayat *et al*, 2013) reported that *S.C*. was tested as anti-malarial and an antimicrobial and against malaria vectors in Sudan. *S.C* was the source of many medicinal active compounds, due to the bio-active properties plants from Asteraceae family that are greatly used to treat many diseases (Wegiera *et al*, 2012)

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