

Knowledge Levels of Health Benefits of Hibiscus Sabdarifa Calyx Aqueous Extract among the Population of Dschang, West Region-Cameroon

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Abstract: Calyces of *Hibiscus sabdariffa* are traditionally processed into aqueous drinks or beverages in many African countries. In Cameroon, the aqueous drink, locally called “folere”, is made from sun-dried calyces boiled in water and many additives added to improve the flavor. This study had as its objective to provide a preliminary insight into knowledge levels of health benefits of *Hibiscus sabdariffa* calyx aqueous extract among the population of Dschang, a town found in the West Region, Cameroon. A random sample of 120 women and 90 men between the ages 29-70 years was surveyed. In this survey, a face to face interviewer – administered questionnaires were used to collect information on the number of consumers of the aqueous extract of HS calyces, the reason they consume it and the various additives added during the preparation. Having some understanding of health-promoting properties of HS aqueous extract was defined as “knowledge” of health benefits. The study findings showed that most of the respondents (67%) were students and unemployed. Majority of the participants (92%) consumed aqueous extract of HS calyx. However many consumers (76%) of this aqueous extract considered it a refreshing drinks. Very few took into consideration its health promoting properties. 44% of the consumers of the aqueous extract traditionally prepared it and used additives (sucrose, pineapple skins, the edible portion of pineapple, ginger and synthetic aroma) during its preparation. Our findings have revealed that Cameroonians arbitrarily consumed HS calyces aqueous extract, used additives during its preparation and had low knowledge of its health benefits. It is therefore very urgent to carry out studies which will establish safe doses of crude calyces that could be used during traditional preparation of aqueous extract and assess the effect of the additives on the health – promoting properties.

Keywords: Knowledge levels, health benefits, *Hibiscus sabdariffa* calyx, aqueous extract, population, Cameroon

1. INTRODUCTION

Food is any substance, liquid or solid, which contains essential nutrients needed for proper functioning of the human body. Our health depends on the types of foods we eat. Hence food choices influence our health (Eusabia, 2011). Many people avoid the consumption of certain food due to ignorance of their health benefits. It is important to know the knowledge levels of consumers about the health benefits of a health promoting food. Some consumers never care or rarely consider health when choosing food products such beverages traditionally prepared (Esmat et al., 2017). According to the knowledge- attitude- practice model, if people know what is good for them, they are likely to behave in their best interest (Anthony, 2002). Knowledge of the health benefits of a food

permits people to choose the food and the appropriate preparation method.

Hibiscus Sabdariffa Linn is a shrub belonging to the family Malvaceae (Kolawole et al., 2014). It is traditionally grown in the tropics for its nutritional and medicinal values. Many studies have provided evidence that the aqueous extract of HS dried calyces possess anti- anaemia, anti-hypertensive, anti-diabetic, anti-oxidant, antibacterial, hepatoprotective, hypocholesterol and nephron-protective properties (Adaramoye, Ogungbenro, Anyaegbu, & Fafunso, 2008; Ajiboye et al., 2011; Liu, Wang, Chu, Cheng, & Tseng, 2002, 2010; Lee et al., 2012; Yin, Cao, Xu, Jeney, & Nakao, 2011; Laikangbam & Damayanti Devi, 2012; Oppliger et al., 2012; Adisakwattana, Ruengsamran, Kampa, & Sompong, 2012 check references). These

health-promoting properties are useful to humans. However, we not certain that consumers of this extract have knowledge of the properties it possesses.

In Cameroon, Hibiscus Sabdariffa is cultivated in the North and West regions. The dried calyces of HS serve as raw material for the preparation of aqueous extract locally called ‘‘folere’’. The aqueous extract of the calyces is prepared traditionally by adding sun dried calyces and pineapple peelings/pulps or ginger into boiling water for some minutes, followed by filtration. Table sugar or synthetic aroma/sweeteners may be added to improve the taste and flavor of the aqueous extract before consumption. Folere is consumed as a cheap affordable beverage or soft drink during Christian gatherings and children birthday parties. On a hot sunny day, folere serves as a refreshing drink to the ordinary people or poor community. Many Cameroonians use folere as a source of income and sale this local drink in plastic bottles. Due to widespread acceptance and usage of HS aqueous extract in Cameroon, the study was undertaken to assess the knowledge of health benefits of this local drink among the population of Dschang, a town located in the West Region of Cameroon.

2. MATERIALS AND METHODS

In order to assess Cameroonians knowledge of health benefits of HS calyces aqueous extract and type of additives used during preparation of the extract, a questionnaire was developed and administered to a sample of people living in Dschang, a town located in Menoua Division, West Region of Cameroon.

This study was conducted in the month of December, 2016 with a convenient random sample of 120 women and 90 men, with an age range of 20-70 years. Majority of the questions were closed to enable coding and computation. The questionnaire was developed in English before being translated into the local language. Before questioning the consumer, the purpose of the study was clearly explained in order to obtain verbal consent. The study collected information on the number of consumers of the aqueous extract of HS calyces, the reason they consume it and the various additives added during the preparation. Having some understanding of health-promoting properties of HS aqueous extract was defined as knowledge of health benefits. The study also gathered information on socio-demographic characteristics. The survey data was analyzed descriptively with SPSS 17.0 (Statistical Package for Social Sciences Version 17.0) and the results were presented as frequencies and percentages.

3. RESULTS

3.1. Socio-Demographic Characteristics

One hundred and twenty women and ninety men were interviewed in the study. The age was ranging from 20 to 70 years. Among the respondents, 14% had primary level education, 30% had secondary education, 53% had higher education and 3% had no formal education. Majority of the respondents (67%) were students, 32% were traders and 1% was employee (Table 1).

Table1. Socio-demographic characteristic of sample respondents (N=210)

Variable	Frequency (n)	Percentage (%)
Sex		
Women	120	57
Men	90	43
Education Level		
Primary	29	14
Secondary	63	30
University	112	53
No formaleducation	6	3
Age		
20-35 ans	159	76
36-50ans	43	20
51-70ans	8	4
Occupation		
Student	140	67
Trader	68	32
Employee	2	1

Source: Author

3.2. Consumption of the Aqueous Extract of Hibiscus Sabdariffa (Hs) Calyces and Reasons for Consumption

The results of this survey shown that the majority of respondents (92%), consumed the

aqueous extract of Hs calyces. 76% consumed it as a drink while very few respondents considered its health-promoting properties before consumption. Further details are given in Table 2.

Table2. Consumption of aqueous extract of Hibiscus sabdariffa calyces and reasons for consumption

Variable	Frequency (n)	Percentage (%)
Do you consume the aqueous extract of calyce from Hs? (N=210)		
Yes	194	92
No	16	8
What is the reason for the consumption of aqueous extract of Hscalyces ? (N=194)		
Anti Anemicproperty		
Yes	54	28
No	140	72
Anti hypertensive property		
Yes	6	3
No	188	97
Hypo cholesterolemic property		
Yes	5	3
No	189	97
Hypo glycemc property (anti-diabetic)		
Yes	3	2
No	191	98
Hepatoprotective property		
Yes	3	2
No	191	98
Anti oxidant property		
Yes	0	0
No	194	100
Anti bacterial property		
Yes	3	2
No	191	98
Drink		
Yes	147	76
No	47	24

Source: Author

3.3.Additives Used during the Traditional Preparation of the Aqueous Extract of Hibiscus Sabdariffa Calyces

Out of one hundred and ninety-four respondents (male and female) who consume the aqueous

extract, 44% prepare the aqueous extract. They added sucrose (32%), pineapple skins (28%), the edible portion of pineapple (20%), ginger (4%) and synthetic aroma (11%). Details are given in Table 3.

Table3. Responses on the additives used during the traditional preparation of the aqueous extract

Variable	Frequency	Percent
Do you prepare the aqueous extract? (N= 194)		
Yes	86	44
No	108	56
What are the additives used during the traditional preparation?(N= 86)		
Sucrose	32	37
Pineapple skins	24	28
Edible portion of pineapple	17	20
Ginger	3	4
Synthetic aroma (Tiara)	10	11

Source: Author

4. DISCUSSION

Most of the respondents were students and unemployed. This is because Dschang is a student community (Demography survey and health, 2004). Majority of the participants consume aqueous extract of Hs calyx. The traditional processing activities of calyx are for production of jam and drinks/beverages (Cisse, 2010). This result is also explained by the fact that in the dry season, the demand for Hs calyx drink is high (Folefack et al., 2008). However many consumers of this aqueous extract considered it a refreshing drinks. Very few took into consideration its health promoting properties. This indicates that they had low knowledge of health benefits of the drink. Many consumers of refreshing drinks do not consider its health benefits (Esmā et al. 2017). Our findings therefore suggest that sensitization strategies be put in place to educate Cameroonians on the health benefits of the Hs calyx aqueous extract which they consume daily. All the producers of Hs calyx aqueous extract used different types of additives. It is therefore necessary to assess the effect of these additives on the health-promoting properties of Hs calyx aqueous extract which is traditionally prepared. The major problem associated with the traditional preparation of the aqueous extract of chalice is the lack of standard technique since the people who prepare it refer to their know-how and experience to determine the quality of the final product (Cissé et al, 2010).

5. CONCLUSION

Cameroonians arbitrarily consumed HS calyces aqueous extract, used additives during its preparation and had low knowledge of its health benefits. It is therefore very urgent to carry out studies which will establish safe doses of crude calyces that could be used during traditional preparation of aqueous extract and assess the effect of the additives on the health – promoting properties.

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