



Human parasitic ova and cyst in local food drinks sold in open markets in Enugu municipality, south-east, Nigeria

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ABSTRACT

A cross sectional study on the prevalence of parasitic ova and cyst in local food drinks (Soya milk, Kunu-zaki and Zobo) from four open markets in Enugu municipality, Southeast Nigeria was carried out in March, 2013. Fifty (50) bottles of each drink were bought from hawkers from four different markets, making a total of 600 bottles of drinks. Formol-ether concentration technique was employed to concentrate the parasites in the drinks. Of the 600 bottles of drinks whose content were examined 254(42%) were contaminated with ova and cysts of parasites. Parasites isolated were protozoan (*Entamoeba histolytica*, *Giardia lamblia*, *Balantidium coli*) and helminthes (*Ascaris lumbricoides* and *Trichuris trichiura*). *E. histolytica* was the highest (27.6%) type of parasite recorded. The highest number of parasites 166(30.1%) was recorded in food drinks collected from Ogbete main market while the lowest number of parasites 117(21.4%) was from Artisan market. Kunu-zaki drink recorded the highest number 192(31.9%) of parasites. However the number of parasites isolated from the different drinks and from different markets did not differ significantly ($P>0.05$). Study indicated that most of the locally made food drinks being hawked in Nigerian markets and environ are contaminated. Such drinks which are cheap with high nutritional values are beverages from beans, leaves and sorghum. Unhygienic environment and poor handling could be the sources of contamination. Health education involving the food drink producers as well as monitoring the activities and the environment of such producers by health workers is advocated.

Key words: Parasites, local food drinks, hygiene, South-east Nigeria.

INTRODUCTION

In Nigeria, there are local food beverages like Zobo, Kunu-zaki, Sorghum and soya milk which are rich in nutrients for body nourishment. Soya milk is a liquid extract from soya bean. It is a valuable source of protein, vitamins and some minerals. Fedrick (2002) reported that soya milk contains far more protein than egg and milk. Zobo drink is the extract of a brilliant red

coloured *Roselle hibiscus sabdariffa*. It is also a natural food colourant. The drink which is high in vitamin C, minerals, and some quantities of protein is indicated to have medicinal quality of lowering high blood pressure (Ojeh, 2002). Kunu-zaki is a cereal based non-alcoholic beverage with essential nutrients for vitality (Abasiekong *et al*, 1988).

These highly nutritional food drinks are sometimes contaminated with parasites. A vast amount of ill health and suffering of man is attributed to the consumption of infected or contaminated food and water. WHO (1972) noted that food borne disease was one of the most wide spread threat to human health and important cause of reduced productivity.

The consequences of human infection with parasites can never be over emphasized, thus this study aimed at determining the level of parasitic infection in some local food drinks sold in Nigerian markets.

MATERIALS AND METHODS

Study area

The study was carried out in Enugu which is in south-eastern part of Nigeria (Fig.1). It is located in the tropical rain forest region of West Africa. The temperature ranges between 20°C and 32°C with relative humidity of 82%. The dry and rainy seasons are the two major seasons that dominate the area. The rainy season is between April and October with the heaviest rainfalls between June and July. The inhabitants of Enugu are mostly civil servants, traders, students and peasant farmers.

Study Sample and technique

Samples of soya milk, kunku-zaki and zobo drinks were procured from four open markets in Enugu municipality. The markets are Ogbete main market, New market, Gariki market and Artisan market. Fifty (50) bottles of each drink were bought from hawkers from the four different markets, making a total of 600 drinks. Formol-ether concentration technique was employed to concentrate the parasites in the drinks (WHO, 1991; Ekwunife, 2003, 2013). Sediments observed were placed on a glass slide and observed microscopically using x10 and x40 objective lens, for possible parasite ova

Statistical analysis

Data collected were analysed using descriptive statistics. Variation in contamination by type of parasitic ova or cyst and market was tested using chi-square test.

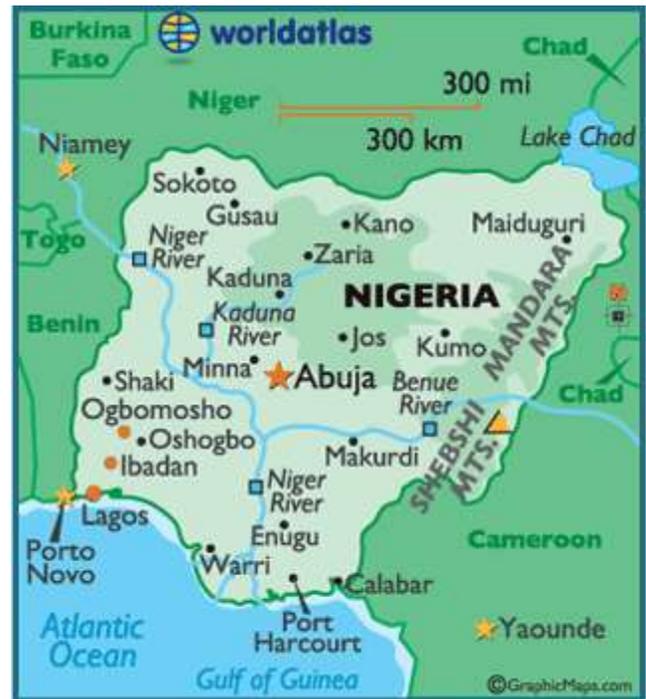


Fig. 1: Map of Nigeria showing Enugu

Source : Worldatlas ©GraphicMaps.com

RESULTS

Of the 600 bottles of drinks whose content were examined 254(42%) were contaminated with ova and cysts of parasites (table 1). Parasites isolated were protozoan (*Entamoeba histolytica*, *Giardia lamblia*, *Balantidium coli*) and helminthes (*Ascaris lumbricoides* and *Trichuris trichiura*). *E. histolytica* was the highest (27.6%) type of parasite recorded. The highest number of parasites 166(30.1%) was recorded in food drinks collected from Ogbete main market

while the lowest number of parasites 117(21.4%) was from Artisan market. Kunu-zaki drink recorded the highest number 192(31.9%) of parasites. However

the number of parasites isolated from the different drinks and from different markets did not differ significantly ($P>0.05$).

Table 1: Number of parasites found in various drinks

Drinks	No. of bottles of drinks examined	No. with parasites	% with parasites
Zobo	200	72	36
Soya milk	200	84	42
Kunu zaki	200	98	49
Total	600	254	42

Table 2: Types of parasites isolated from drinks the different markets

Market	<i>Entamoeba histolytica</i>	<i>Giardia lamblia</i>	<i>Balantidium coli</i>	<i>Ascaris lumbricoides</i>	<i>Trichuris trichuria</i>	Total(%)
Ogbete	40	42	44	22	18	166(30.1)
New mkt	37	34	29	16	11	127(23.2)
Gariki	35	38	38	18	91	38(25.2)
Artisan	39	35	20	13	10	117(21.4)
Total(%)	151(27.6)	149(27.2)	131(23.9)	69(12.6)	48(8.8)	548

DISCUSSION

The food drinks which are beverages from beans, leaves and sorghum are highly patronized by majority of people in Nigeria due to their cheapness and high nutritional value. However such food drinks are associated with some parasitic ova and cysts as found in this study. The percentages and

the different types of parasites isolated in the drinks is a serious problem. The cysts were the most abundant contaminant. Unhygienic practices and poor environmental sanitation may contribute to this high level of contamination. These food drinks are known to undergo series of stages like transporting, storage, fermentation, husk removal,

milling, heating and sieving before they are served or sold to people for consumption. The parasites may encyst under such adverse conditions of food processing like heating.

E. histolytica was the highest type of parasite recorded followed by *Ascaris lumbricoides*. Reports of high contamination of foods, vegetables and drinks with *Ascaris lumbricoides* as well as their pathological consequences abound (Ejezie, 1981; Ukoli, 1981; Umoh *et al*, 2001; Eneanya and Njom 2003; Ekwunife, 2009; Ekwunife *et al*, 2010; Ekwunife *et al*, 2013).

Kunu-zaki drink (prepared with fermented millet) recorded the highest number of parasites. This contamination may be as a result of **high duration of time** for the fermentation, dirty utensils and contaminated water used during processing.

The highest number of parasites was recorded in food drinks collected from Ogbete main market.

This could be due to the fact that it is the largest market and so it attracts so more people that litter the environment. Personal observation also showed that Ogbete environment was very unsanitary. However the number of parasites isolated from the different drinks and from different markets did not differ significantly ($P > 0.05$).

This study indicated that most of the locally made food drinks being hawked in Nigerian markets and environ are contaminated. Unhygienic environment and poor handling could be the sources of contamination. Health education involving the food drink producers as well as monitoring the activities and the environment of such producers by health workers is advocated.

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