# Study on the perception and attitude of fruit consumption in households in the City Province of Kinshasa, DR Congo

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**Résumé**

Cette étude a été menée auprès des 124 acheteurs/consommateurs et 126 vendeurs fréquentant les 5 grands marchés de Kinshasa dont le Grand Marché de Kinshasa, Marché de Matete, Marché de Liberté, Marché Gambela et Marché de Selembao choisis parmi tant d'autres marchés de la ville pour une enquête quantitative de type CAP structurée d'un échantillon de 250 enquêtés afin de savoir si leurs ménages consomment ou associent les fruits dans leur alimentation quotidienne. Malgré la disponibilité et la diversité des fruits tropicaux et subtropicaux inondant les marchés locaux de Kinshasa, il s'avère seulement que 18,0 % des ménages des vendeurs et acheteurs enquêtés associent les fruits dans leur alimentation quotidienne.

**Mots clés : Fruits, acheteurs, vendeurs, marchés**

**Abstract**

This study was carried out among 124 buyers/consumers and 126 sellers attending the 5 major markets of Kinshasa including the Grand Marché de Kinshasa, Marché de Matete, Marché de Liberté, Marché Gambela and Marché de Selembao chosen among many other markets. the city for a structured quantitative CAP-type survey of a sample of 250 respondents in order to find out if their households consume or combine fruits in their daily diet. Despite the availability and diversity of tropical and subtropical fruits flooding the local markets of Kinshasa, it turns out that only 18.0% of the households of the sellers and buyers surveyed combine fruits in their daily diet.

**Keywords** : Fruits, buyers, sellers, markets

## 1. Introduction

Reflections on low fruit consumption have long animated writings as well as various contributions with a view to improving the nutritional conditions of the population. Food consumption cannot be interpreted independently of the act of eating, an act that man carries out several times a day in the form of ordered or unordered meals. It is during this act that each person ensures that their body meets its needs in energy, essential materials, macro and micro nutrients [1].

According to a study carried out in 2007 by the World Cancer Research Fund and the American Institute for Cancer Research, including the work entitled "Food, nutrition, physical activity and cancer prevention: a global perspective in the United States" aimed to study the effects of diets on American consumers. Cancer prevention techniques specify that increasing the production and consumption of fruit is becoming a priority on a global scale because its low consumption is among the ten main risk factors for mortality [2]. This study states in its results that out of 100% of cases of illness recorded in the USA in recent years, those caused by deficiency in fruit consumption represented 48%.

Just as Hung HC et al [3] in a study on the consumption of fruits and vegetables and risk of major chronic diseases estimate that insufficient consumption of fruits in the world is responsible for 19% of gastrointestinal cancers, 31% of heart disease and 11% of strokes.

As for Hall et al [4] in their study carried out in 2009 on the overall variability of fruit and vegetable

consumption, they testify in the results of their research that certain nutritional disorders lead to debility, in particular birth defects, delays mental and physical, weakening of the immune system and even death. These symptoms and signs are attributable to diets low in vitamins and minerals. The main factor contributing to these deficiencies is a diet low in fruit.

In France, the National Nutrition and Health Program (PNNS) had set as its first priority objective in terms of health for the period 2006-2010 to increase the consumption of fruits and vegetables in order to reduce the number of small consumers by at least 25%. [5].

The increase in consumption of fruits and vegetables remains a concern for public health decision-makers in most countries. Despite campaigns aimed at promoting the consumption of fruits and vegetables, in many studies we observe a small variation in consumption in the population.

According to numerous studies, a diet rich in fruits and vegetables contributes to the prevention of cardiovascular disease and certain forms of cancer, which are among the leading causes of death in Canada [6-7]. Despite the important role of nutrition in maintaining good health, very little data on the consumption habits of various foods including fruits have been collected on a national scale since the beginning of the 1970s [8- 9].

In the Democratic Republic of Congo, although there are many types of fruits grown and sold in local markets and in food stores (industrialized fruits), the Congolese population ignores fruits in daily diets. It is worth recalling the extreme weakness of current Congolese consumption, which suggests that real fruit needs are far from being satisfied. And few studies have focused on fruit consumption in households [10]. The objective of this study is to know if the population of the city province of Kinshasa often consumes or combines fruits in their diet in their households.

## 2. Materials and Method

The study was carried out in November 2022. This is a descriptive cross-sectional study. The statistical units were made up of sellers and buyers who represented their households and were located in the 5 major markets chosen among many others in the city of Kinshasa, namely :

- The first market “Large market of Kinshasa” is located in the commune of Gombe; the second called “Matete Market” which is located in the commune of Matete, the third called “Liberty Market” which is located in the commune of Masina; the fourth market “Gambela” located in the commune of Kasa-Vubu and the fifth called “Market Selembao” is located in the Commune of Selembao.

The choice of these markets was motivated not only for reasons of accessibility, but they are real places where the entire population of Kinshasa comes together. Every day they welcome thousands of sellers and buyers who, in their households, are consumers of all kinds of tropical and subtropical fruits such as avocados, bananas, plantains and similar, dates, figs, other tropical fruits. and subtropical fruits (pineapples, mangoes, guavas, papayas, passion fruits, etc.) as well as table olives, coconuts and other oleaginous fruits (copra, palm kernels and nuts, etc. and other oleaginous fruits) purchased by households for consumption.

In each market, 50 interviews were carried out, including 25 for sellers and 25 for buyers. This allowed us to understand the perceptions and attitudes of these two targeted groups with regard to fruit consumption. All interviewees who participated in the study gave their free and informed consent. Figure 1 presents the location of the markets surveyed.

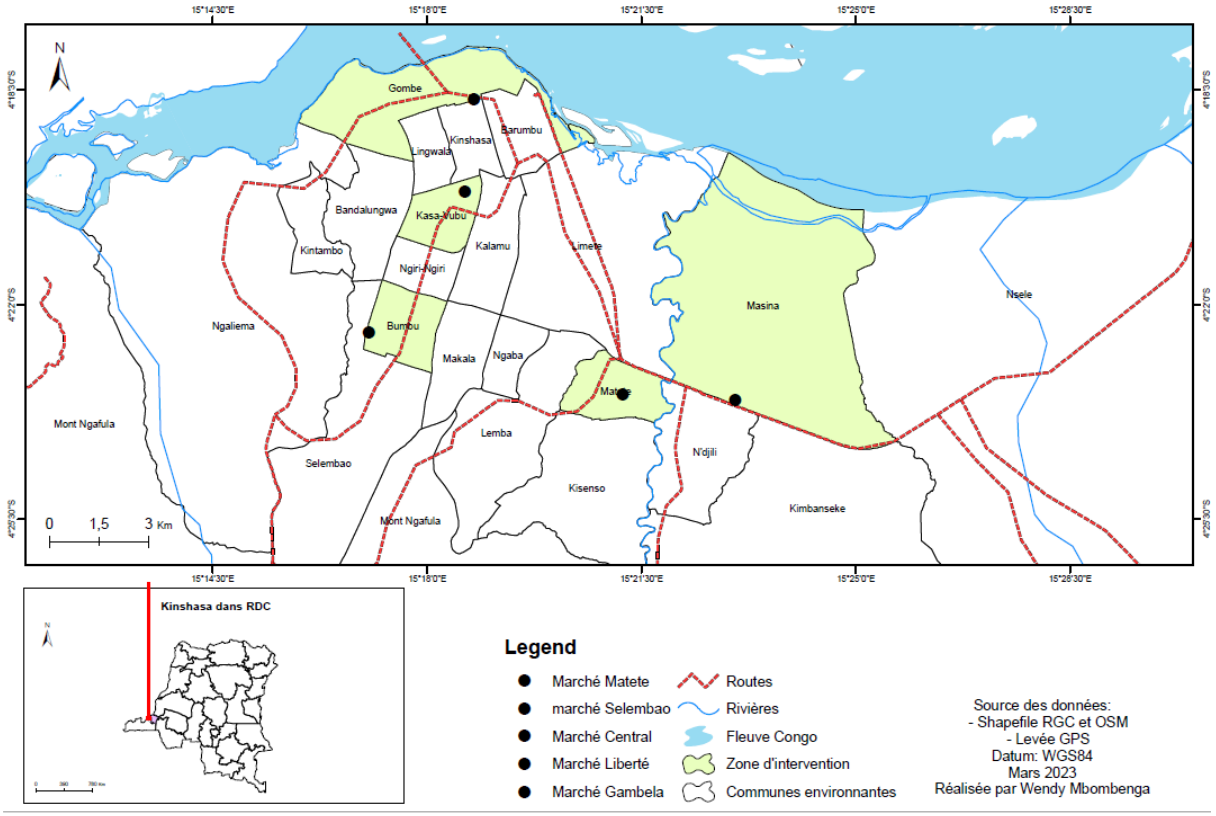


**Figure 1 :** Location map of the Democratic Republic of Congo, study areas of the different markets visited

## 3. Data collection and analysis

To collect the data, after the documentary review, the team interviewed 126 sellers and 124 buyers/consumers. A total of 250 people were interviewed as part of this study. The data was collected by the interview technique based on a semi-structured questionnaire [7] using a questionnaire designed for this purpose, in order to find out whether the households of sellers and buyers of the said markets consume or associate fruits in food.

After checking and encoding the forms, the data were processed statistically using Epi Data 3.1 and SPSS for Windows version 26.0 software. All analyzes were carried out considering a significance level of 5%. The data collected focused on the perceptions and attitudes of households (sellers and buyers) regarding fruit consumption in households such as the nature of fruit, fruit consumption, frequency of fruit purchases, types of fruit and washing fruit before consumption.

## 4. Results

### 4.1. Sociodemographic characteristics

The majority of respondents (sellers and buyers/consumers) were female with a percentage of 88.4. Their average age was 37.33 years, a standard deviation of 10.907 years with the extremes of 18 and 68 years. The sellers (17.2%) were aged 41 to 51. The age groups of 30 to 40 years (14.0%) and 52 years and over represented 12.4%. As for buyers, 22.0% were under the age of 30 and 20.0% were between 30 and 40 years old. As for other socio-demographic aspects, the results of this study showed that the majority of sellers (34.0%) had completed secondary school and 5.6% university level; 34.4% of buyers had completed secondary school and 9.6% university level. Regarding marital status, the study showed that 30.8% of sellers were married and 8.4% single. For buyers, 17.6% were married and 26.4% single.

### 4.2. Fruit consumption in households

Fruit consumption in the households of sellers and buyers is linked to their eating habits. For those who consume fruits very often, the rate is low at 18.0%, 46.0% are those who consume them often and 17.3% are households who consume them occasionally. It should be noted that a category of households which rarely consume fruit (18.4%) (Figure 2).

### 4.3. Types of fruits consumed in households

This study shows that 86.0% of households of sellers and buyers consume mangoes first, 67.6% of households consume oranges, 50.8% avocados and 45.2% of households consume bananas (Figure 3).

### 4.4. Knowledge about the nature of the fruits consumed

When asked about the quality of fruits consumed in the households of sellers and buyers, 58.8% of those interviewed said that the fruits were natural and 1.2% classified them in the category of GMO products (**Figure 4**).

### 4.5. Frequency of fruit consumption

The frequency rate of fruit consumption in the households of sellers and buyers is 25.2% for every day, 33.2% for twice a week and a consumption rate of 9.6% once a week (**Figure 5**).

### 4.6. Favorite places to buy fruit

Figure 5 summarizes the different places that sellers' and buyers' households obtain fruit. Among these places, 74.0% of those interviewed cited the local market as the first place to buy fruits, 24.8% of those interviewed referred to street vendors and only 1.2% bought them at the Super Market (**Figure** 6).

### 4.7. Attitudes of sellers and buyers on fruit washing in households

The majority of households of sellers and buyers surveyed have the habit of washing fruit before consumption, 36.4% do it sometimes and 12.0% of households do not do it (**Figure 7**).

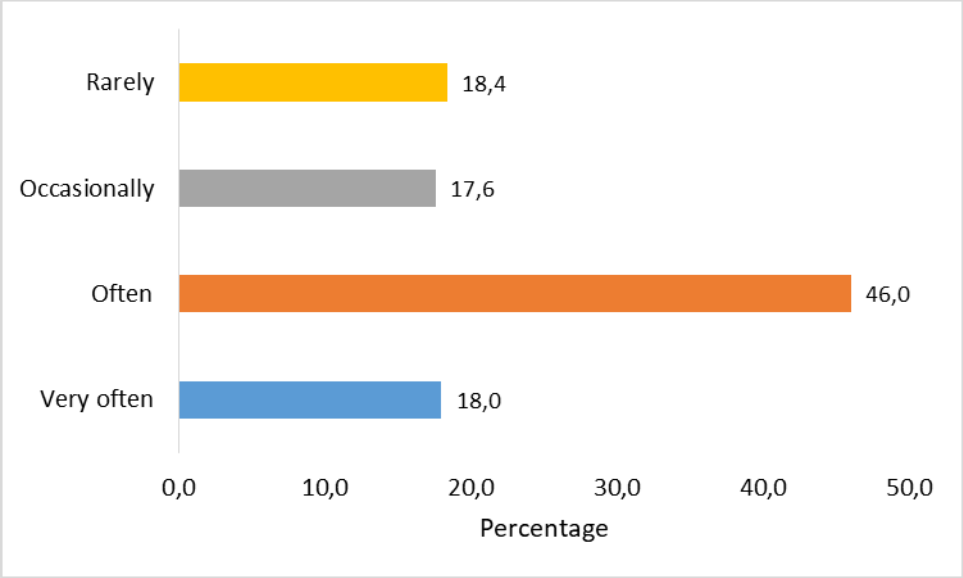


**Figure 2 :** Fruit consumption in the households of buyers and buyers

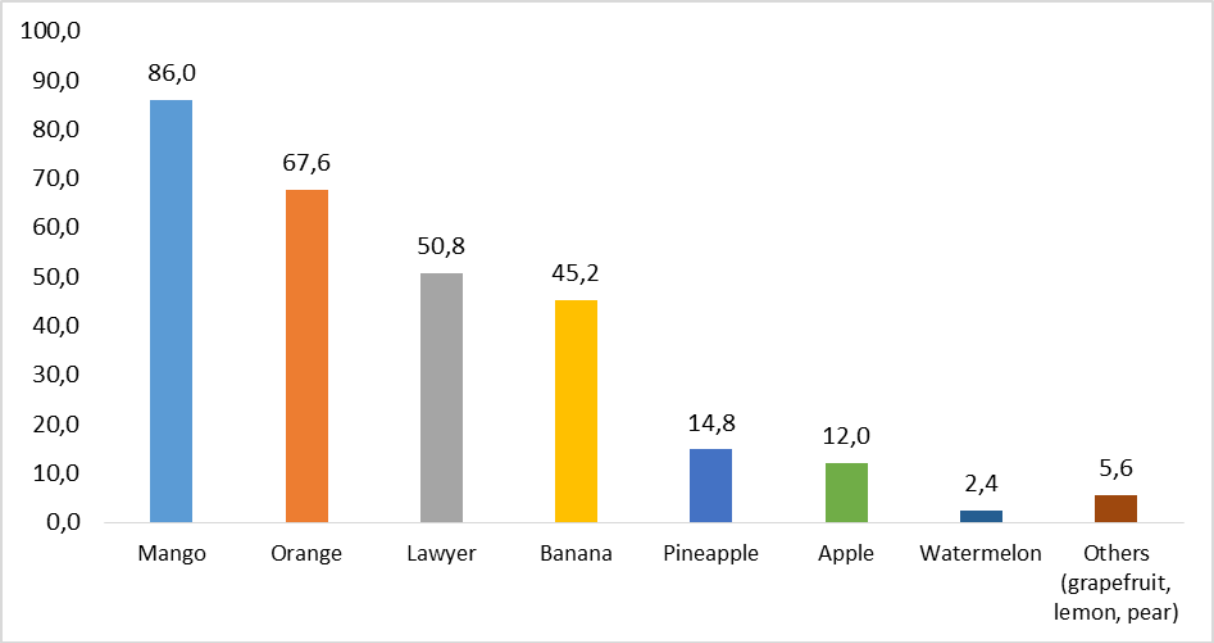


**Figure 3 :** Types of fruits consumed by households of sellers and buyers

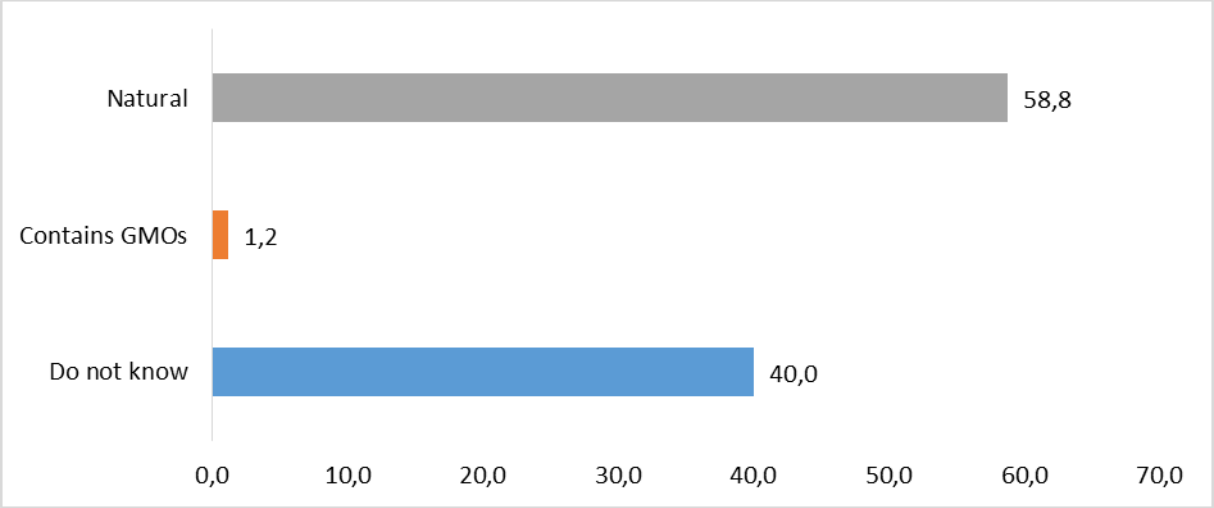


**Figure 4 :** Types of the nature of fruits consumed by the households of sellers and buyers

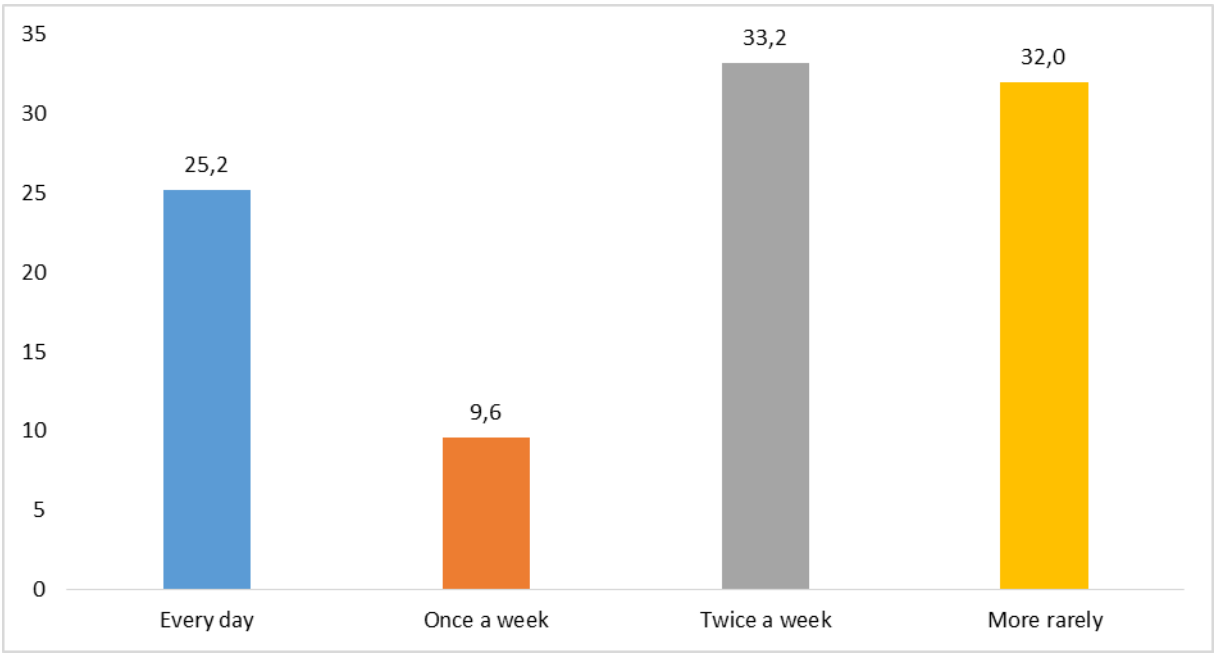


**Figure 5 :** Frequency of fruit consumption in the households of sellers and buyers

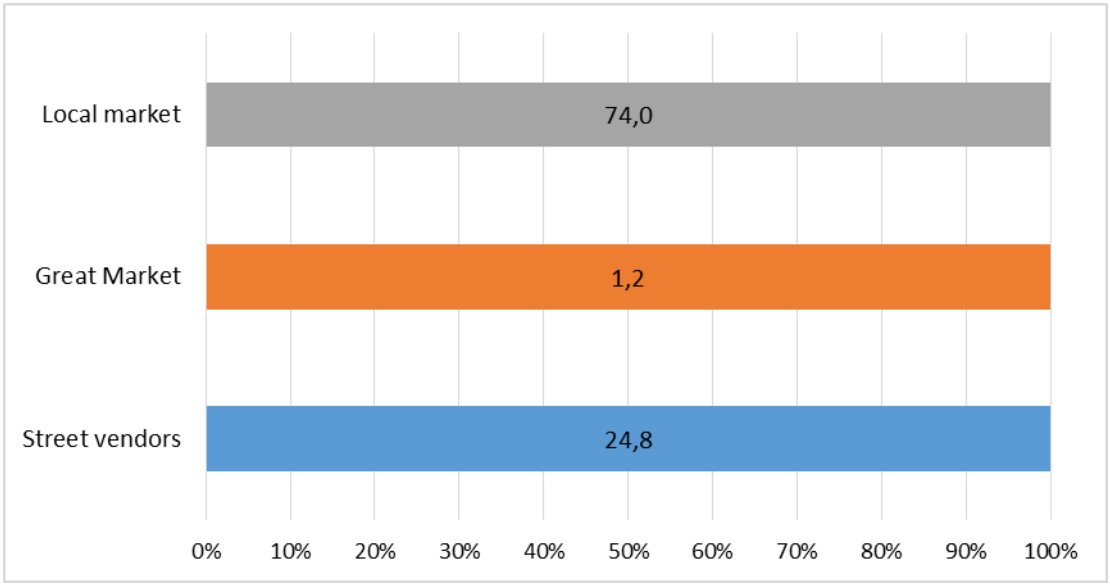


**Figure 6 :** Places to buy fruit

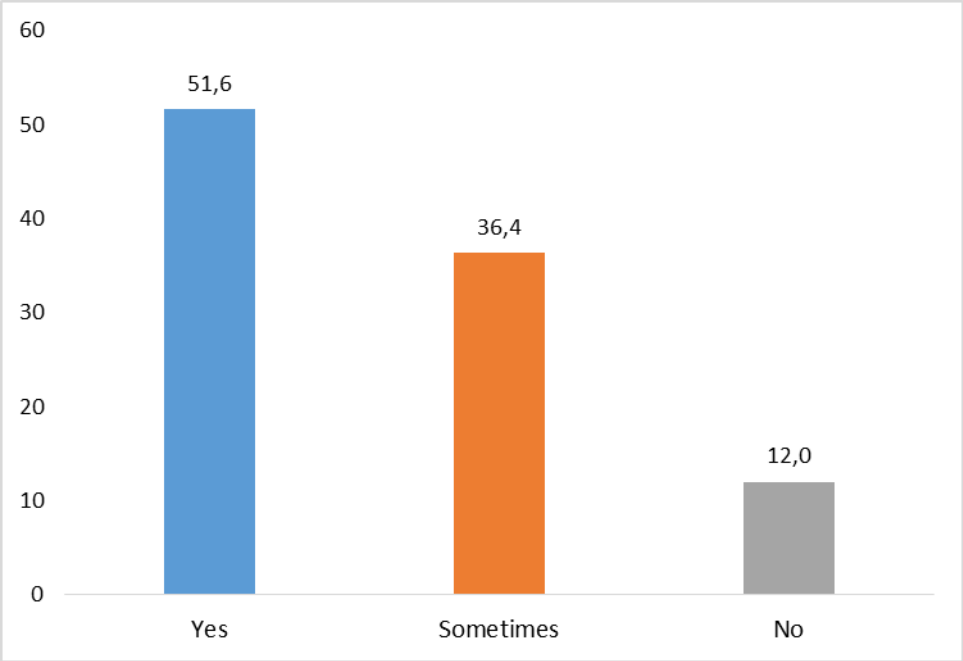


**Figure 7 :** Washing fruit before consumption

## 5. DISCUSSION

It appears from this study that the availability and diversity of fruits in the Democratic Republic of Congo, more particularly in Kinshasa, vary greatly during the year. The city of Kinshasa is flooded at all times of the year with tropical and subtropical fruits which are sufficient for household consumption.

The socio-demographic characteristics of the interviewees in the markets surveyed show an obvious employment crisis and lack of means to pursue higher education/university studies. Indeed, 34.0% of sellers and 34.4% of buyers had reached secondary school, 15.3% had primary school and only 7.2% were illiterate. Our results are lower than those of Mona Sharaf ABDELGALIL in a study carried out in Egypt on the knowledge and attitudes of Egyptian and French consumers towards genetically modified foods on the markets, who reported that the majority of participants in the district of Alexandria and Garges are educated and have either a university degree or higher, with (88.0%) and (60.7%) respectively [11].

The proportion of fruit consumption in the households of sellers and buyers surveyed amounts to 18.0% in this study. This proportion is lower than that found in Paris households that purchase organic fruit and vegetables for consumption, which increased from 42% to 51% between 2007 and 2010. This percentage is justified for the reason that fruit consumers in Paris are better informed about the benefits of regular fruit consumption and do not even pay attention to the presence or absence of pesticides in the fresh fruit they buy [12].

Regarding knowledge of the nature of the fruits consumed, 58.8% of sellers and buyers said that all the fruits that their households consume are natural and do not run any health risks. This proportion does not corroborate with a study carried out by Stéphane Mandard in 2022 on the contamination of dangerous pesticides contained in fruits produced in Europe [13].

This study showed that 25.2% of households of sellers and buyers in the markets visited consume fruits in their diet every day. This proportion is lower than that found in a survey carried out in 2014 on health in Canadian communities where 49% of the population of Gaspésie–Îles de-la-Madeleine consumes fruits and vegetables at least 5 times a day [14]. . This high proportion in Canada is justified by Canada's Food Guide which recommends that girls and boys aged 14 to 18 eat respectively 7 and 8 servings of fruits and vegetables per day. Between the ages of 19 and 50, this number increases to 7-8 servings for women and 8-10 for men. After that, 7 daily servings are recommended for everyone. It is appropriate to say that sufficient consumption of fruits and vegetables reduces the risk of developing various chronic diseases including cardiovascular diseases, diabetes and obesity. This low proportion found in this study is justified by the lack of information and popularization on the nutritional benefits of fruits.

## 6. CONCLUSION

This study aimed to find out if the population of the city province of Kinshasa often consumes or combines fruits in their daily diet. The results of this study showed that despite the availability and diversity of tropical and subtropical fruits which supply the markets of Kinshasa, households of the Kinshasa population are not in the habit of combining fruit consumption in their diet, which justifies the low rate of 18.0%. In particular, the general population of Kinshasa consumes natural fruits, but at varying frequencies, due to insufficient information on the advantages and disadvantages linked to regular or non-regular consumption of fruits in sufficient quantities. Information and popularization on the advantages linked to the consumption of fruits as well as the potential health risks due to non-consumption are extremely necessary.

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