

## Technical Note

### Composition and Proposed Use of Two Wild Fruits from Zaire

#### ABSTRACT

*Kasongole (Strychnos cocculoides Bak) and Matungulu (Afromomum stipulantum K. schum) are two wild fruits widely consumed in Zaire. Their chemical and gross compositions are described. It is proposed to use them as raw material for clear nectars.*

#### INTRODUCTION

Although work exists in the literature on the diet of the people of Zaire (Staner, 1935; Lambrechts & Bernier, 1961), little or no information may be found on the chemical composition of the many wild fruits consumed in the country. Kasongole and Matungulu appear to be the most frequently eaten of the wild edible fruits already identified. The two fruits are particularly appreciated by pregnant women and children for their strong sour taste.

Kasongole is a 3-5 m high tree which grows wild in the bush and forest glades. The fruits are orange shaped and coloured; they have a hard rind and their juicy yellow-brown pulp is very aromatic. The fruits are gathered between July and October.

Matungulu is a 1-2 m high shrub which grows wild in grasslands and in deep forests. The fruits grow below the ground on the bottom of the shrub; they are oblong in shape and become red when ripe. They are sour and their whitish pulp is dotted with black, pungent seeds. These refreshing fruits form part of the people's diet from April to September.

#### GROSS AND CHEMICAL COMPOSITION

##### Materials and methods

Fruits were purchased from the local market. They were weighed and peeled. The pulp was wrapped in cheesecloth and pressed with a hydraulic

press. The juice was filtered and stored under refrigeration, being analysed by means of standard methods (Lecoq, 1965; AOAC, 1975).

#### *Pectic substances*

The filtered juice was treated with amylases to remove starch and carbon black to get rid of colouring materials. Pectin was precipitated with acetone, dried and weighed.

#### *Total soluble solids*

Total soluble solids were determined by an Abbé refractometer with a sucrose scale.

#### *Total and reducing sugars*

Total and reducing sugars were determined by Fehling solution before and after 1 hour's acid hydrolysis.

Each determination was carried out in duplicate, the average being reported. For the determination of gross composition two batches of ten fruits each were used. The fruits were weighted, cracked and the inner pulpy material removed. After the juice was extracted, the rinds and residues were separately weighed. The average data for two batches are reported (Tables 1 and 2).

## Results

**TABLE 1**  
Chemical Composition of Juices

<i>Analysis</i>	<i>Kasongole</i>	<i>Matungulu</i>
pH	3.5	3.7
Total soluble solids (%)	18.00	8.00
Titrateable acidity (meq/litre)	339.00	51.15
Reducing sugars (%)	8.75	0.19
Total sugars (%)	12.45	0.41
Pectic substances (%)	0.09	0.09
Proteins (%) (N × 6.25)	0.24	0.32
Vitamin C (mg/100 g)	23.00	10.30
Ash (%)	0.70	0.90
Calcium (mg/100 g)	10.86	9.32
Phosphorus (mg/100 g)	6.74	5.83
Iron (mg/100 g)	0.86	2.10

**TABLE 2**  
Gross Composition of Juices

<i>Fruit</i>	<i>Average weight of fruit (g)</i>	<i>Juice (%)</i>	<i>Rinds (%)</i>	<i>Residual pulp (%)</i>
Kasangole	179	26	46	28
Matungulu	20	26	57	17

### PROPOSED USE

The extracted juice itself is too acidic to be consumed directly. However, on dilution to a clear nectar, a palatable beverage is obtained. The following method and recipes can easily be used domestically or on a larger scale (Cobanov & Mbiyangandu, 1981). Nutritionally they may be considered as a source of minerals (Duckworth, 1966).

#### **Kasangole**

Fruits are cracked and the pulp removed from the rinds. The pulp is then pressed through cheesecloth manually or by means of a hydraulic press. The juice is heated at 92 °C for 3 min to inactivate oxidative enzymes and to initiate the precipitation of colloidal substances which are removed by filtration. The clear filtrate with 18 % of total soluble solids is diluted in water as follows: clear juice, 30 %; water, 70 %. Next, 10 % of sugar is added and a clear nectar of 15 % total soluble solids is obtained which is bottled and pasteurized.

#### **Matungulu**

Fruits are cracked and pulp is removed from the rinds. Juice is obtained as described above. The juice, which is whitish in colour, is then filtered and the filtrate is diluted with water in the proportion 1:1. Eleven per cent of sugar is then added and a nectar with the typical aroma of the fruit with 15 % dry soluble solids is obtained which is bottled and pasteurized.

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