

Nutritional Properties and Antioxidant Activity of *Chrysophyllum africanum* Leaves and Pulp

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Abstract

The aim of this study was to determine the chemical composition and antioxidant activity of methanol extract of *Chrysophyllum africanum* leaves and pulp. Results revealed that the leaves contain considerable amounts of minerals and vitamins as follows: 14.14 mg/100 g for iron, 2.37 mg/100g for potassium, 1434.38 mg/100 g for manganese, 82.71 mg/100 g for magnesium, 185.49 mg/100g for calcium, 28.33 mg/kg for ascorbic acid, 13.33 mg/kg for thiamine and 55.83 mg/kg for pyridoxine. Furthermore, it was found that both the leaves and pulps were also rich in the following: 297.49-304.94 mg QE/100 g for total flavonoids, 2086.98-2304.72 mg GAE/100 g for total phenolics, 1.6-96400 mg/kg for citric acid and 130.23-515.23 mg/100 g for tannins. Our results therefore demonstrate that could serve as supplementary source of essential nutrients and antioxidant components with health benefits.

Plant and fruits have been helpful in treatment and management of diseases, with most pharmaceutical drugs derived from them. Fruits constitute important parts of a balanced diet as they are natural sources of food nutrients namely: protein, carbohydrate, minerals and dietary fibre, needed by man and animals. African Star Apple (*Chrysophyllum africanum*), locally called “Udala” by the Ibos and “Agbalumo” by the Yorubas is found mostly in African Countries. Its distribution extends from Sierra Leone to the Congo region and Angola, found in rain forest and transitional formations, often planted for its edible fruits. Its distribution also extends to Sierra Leone to Spain, Guinea, extending to Sudan, Uganda, Kenya and Nyasaiano. It is also found in countries like Southern Nigeria, Cameroons, Ghana, Ivory Coast and Sierra Leone.

Chrysophyllum africanum is of the family “Sapotacea”. Its habitat is usually on riverside in closed forest, and often planted in villages. *Chrysophyllum africanum* has different species, but *Chrysophyllum africanum* and *Chrysophyllum albidum* bear the same common name in Nigeria “UDALA” [1]. A medium sized, evergreen tree usually 70 ft to 100 ft high; bole straight, flitted, bark gray and riddget, slash thin, cale brown, darkening to orange, heartwood whitish when first felled, turning a pink buff to an olive yellow and finally a yellowish brown, not demarcated from the sapwood.

Texture fine to medium, grain straight to occasionally interlocked, luster rather low; wood contains a pale brown gum. *Chrysophyllum africanum* bears edible fruits with large berries containing five large flattened seeds. It is greenish in colour when unripe and pale orange when ripe. It is pointed at both ends. The fruits are large and more than 4 cm wide, shaped like orange or apple; it is often cultivated for its edible fruits and the pulp having a pleasant acid taste [2].

Chrysophyllum africanum (African Star apple propagation is by seed either by encouraging natural regeneration or plantation traditionally. The sapwood is pale yellow and takes a good polish. It is fine grained, hard and tough polishes well. It is used in carving and tourney. The seeds yield edible oil, which is sometimes used in Ashanti for making soap. The latex is used as birdlime, the back is also used medically, often sold in the market and the tree is usually grown for this purpose.

In parts of Anambra and Imo States, this tree (African Star Apple) forms the focal point or venue for a fertility rite, in which young girls, childless wives celebrates a festivity-eating, singing and dancing for the sole purpose of praying to the gods of birth, this is a gesture of charity, since children are freely entertained without discrimination or distinction. The African Star Apples are valuable sources of minerals such as protein, fats and oil, carbohydrates etc.