

Nutrition and Health: PHYSICOCHEMICAL PROPERTIES OF THE PULP OF AFRICAN STAR APPLE- Onimawo I A- Ambrose Alli University

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Abstract

African Star Apple (*Chrysophyllum albidum*), an original plant is an eatable tropical fruit, which is categorized as a wild plant and belong to the family Sapotaceae. fruit which is known as "Agbalumo" by the Yorubas and the Igbos call it "Udara" is periodic and glabrous when ripe, ovoid to subglobose, pointed at the apex and up to 6centimetres long and 5cm in diameter. This fruit skin or peel is orange to golden yellow when ripe and pulp within the skin may be orange, pinkish, bricked or light yellow. The fruit grows naturally in the forestry habitat of parts of Africa covering from Sierra-Leone through Guinea, Sudan to East African Countries such as Kenya, Uganda. It is spread in all forest types in Southern Nigerian and also in compounds and outlying farms in most villages, in parts of South Western Nigeria. The tree mostly flowers between the months of April and June and fruits between December and March Fruits generally are not only consumed fresh but also used to produce jam, stewed fruit, jellies, marmalade, syrup and numerous types of soft drinks. It is also used for medical purposes. The seed and leaves in pharmaceuticals. Some of the trees are also valuable for decoration as an ever green broadleaf plant (Islam, 2002).

Chemical Analysis: They fruits were separated into two shares. One portion was used for the determination of the moisture and ascorbic acid contents. The other portion was dry in hot air mixing oven at 650C to a constant weight for (18-24h). The dried samples were ground into powder using an electric mixer with steel edges and stored in screw covered containers at 4-6 o C. Proximate composition was determined by standarde procedures (AOAC, 2000). The energy value was considered using the water factors of 4, 9, and 4 for protein, fat and carbohydrate respectively. Total alkaloids was determined by the spectrophotometric method of Shamsa et al. (2008) whereas saponin composition was estimated using the gravimetric method. The Total Soluble Solids (TSS) for the pulp was determined in Degree Brix using a hand Refractometer (Alago, Tokyo model Leica 10431) with a scale of 0-50 degree Brix. This anthrone method as modified by Kumar et al.(2012) was used with glucose average curve serving to estimate the absorption of total sugar in the sample.

Titrateable acidity was a determined by titration to pH 8.1 with 0.1 M NaOH solution and calculated as grams of citric acid

per 100 g of sample (AOAC, 2000). The Total Soluble Solids (TSS) for the tissue was resolute in Degree Brix using a hand Refractometer with a scale of 0-50 degree Brix.

The colorimetric process of AOAC (2000) process was approved by which measures the absorbance of 620nm of the colour that results from the reaction between vitamin A and $SbCl_3$.

Discussion: The pulp had considerable concentrations of some minerals. High absorption of potassium (346.17mg/100g) and a lower level of iron (2.90mg/100g) were observed in the pulp. This agreement with the report of Adepoju (2009) who asserted that *C. albidum* fruit pulp was in heightiest in potassium, calcium, and zinc, phosphorus, manganese and copper. The *Chrysophyllum albidum* variations can be good source of potassium, phosphorus and calcium which are required for electrolyte balance, development of strong bones and teeth. Anti-nutrients such as phytate and oxalate were found to be the low in the pulp of the seed. However saponin was found to be quite high (9.38g/100g). Adepoju and Adeniji (2012) had former reported a phytate range of for some *Chrysophyllum* varieties which were however lower than that observed in this study. The fruit pulp of *Chrysophyllum albidum* can be invented to contain low levels of some anti-nutritional factors like phytate and oxalate, and consequently the adverse effects of these antinutrients would be minimal upon the consumption of large quantity of the fruit. The fruit limit higher amount of phytonutrients like flavonoids which has been known to play the key role of antioxidant that aid in the searching of the free radicals. Hence, the fruit pulp could be considered to be very nutritious (Takruri and Dameh, 1998), and its consumption should be encouraged. Vitamin C is highly complex to a lot of conditions such as heat, light, oxygen, pH. This education shows that the African Star Apple has an average value of 40mg/100g which is advanced than the 12mg/100g testified by Dauda (2014) for *Chrysophyllum* juice. Vitamin A is known to serve as an antioxidant, possesses an anti-aging activity and enhance good vision. That the pulp is ironic in vitamin A (246.33mg/100g) is a good quality of the African Star Apple.

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