

Comparative Analysis of Some Vitamins in Fresh Leaves of *Cucurbital moschata* and *Amaranthus hybridus* L.

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Abstract: The vitamin compositions of fresh leaves of *Cucurbital moschata* and *Amaranthus hybridus* L. were determined through spectrophotometric and titrimetric methods. The investigation revealed that the fresh leaves of *Cucurbital moschata* contained higher amounts (mg/100g) of ascorbic acid (33.49 ± 1.22), thiamine (17.38 ± 2.06) and riboflavin (3.41 ± 0.18) while *Amaranthus hybridus* contained higher amount (mg/100g) of niacin (6.66 ± 1.77) with corresponding values (mg/kg) of thiamine and tocopherol as 11.41 ± 0.35 and 9.34 ± 0.58 respectively. There were no significant differences in the tocopherol and retinol contents of both samples. The results revealed that *Cucurbital moschata* could serve a better source of some vitamins than *Amaranthus hybridus* L.

Key words: Vitamins • *Cucurbital moschata* and *Amaranthus hybridus* leaves

INTRODUCTION

Medicinal plants are plants that have a recognized medical use. They range from those used in the production of mainstream pharmaceutical products to plants used in herbal medicine preparation. Plants have been used in treating human diseases for thousands of years. The use of herbs to treat diseases is almost universal among non-industrialized societies and often more affordable than purchasing modern pharmaceuticals [1].

Cucurbital moschata known as fluted pumpkin is one of the most important vegetables used in West Africa to increase dietary quality of soup. It is a herbaceous plant that belongs to the family of *cucurbitaceae*. The nutrients in *Cucurbital moschata* are essential for good health and growth among lactating mothers. The seeds of fluted pumpkin contain protein and are significantly high in potassium, iron, crude fat and other essential nutrients which can supplement other foods [2].

Amaranthus hybridus L. commonly known as “green” is from a bushy annual plant belonging to the *amaranthaceae* family. There are over 60-70 species with flower shades ranging from green to red and violet to gold [3]. *Amaranthus hybridus* are mostly sourced from the species *Amaranthus dibiidus*, *Amaranthus caudatus*, *Amaranthus tricolor*, *Amaranthus* birds and *Amaranthus cruentus*. Besides the leaves, *Amaranthus* is also grown

for its seeds or grains consumed as cereals and for many health benefits. In African countries, *Amaranthus hybridus* is an important nutritious food used in treating those suffering from poor diet [4].

A vitamin is an organic compound required by an organism as a vital nutrient in limited amount [5]. An organic chemical compound is called a vitamin when it cannot be synthesized by an organism and must be obtained from diet. Thus, the term is conditional both on the circumstances and on the particular organism. For example, ascorbic acid is a vitamin for humans, but not for most other animals. Supplementation is important for the treatment of certain health problems [6].

There is need to study the vitamin levels of plants to identify those with significant high levels, hence the need to determine and compare the concentrations of vitamins in fresh leaves of *Cucurbital moschata* and *Amaranthus hybridus*.

MATERIAL AND METHODS

Materials: The chemicals and reagents were of analytical standard. The fresh leaves of *Cucurbital moschata* and *Amaranthus hybridus* L. were collected from Abakaliki, Ebonyi State in the month of January.

Methods: The methods used by Okwu and Josiah [8] were used for vitamin determination.



Fig. 1: *Cucurbital moschata* [7]



Fig. 2: *Amaranthus hybridus* L. [3].

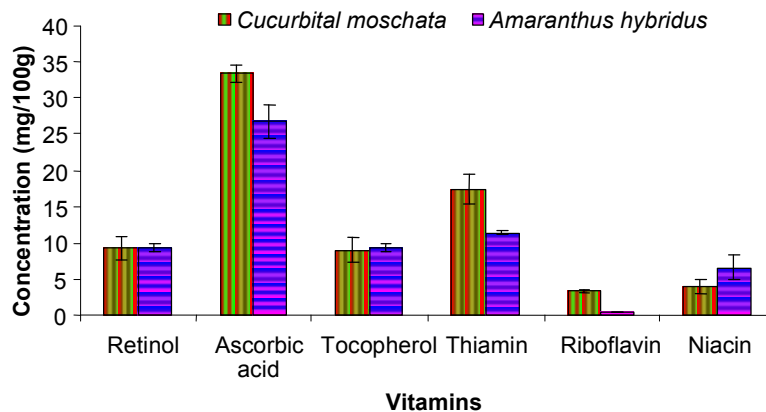


Fig. 3: Comparative vitamin composition of *Cucurbital moschata* and *Amaranthus hybridus*

RESULTS DISCUSSION AND CONCLUSION

The fresh leaves of *Cucurbital moschata* and *Amaranthus hybridus* recorded varying and substantial concentrations of vitamins. *Cucurbital moschata* recorded higher amounts (mg/100g) of ascorbic acid, thiamine and riboflavin while *Amaranthus hybridus* contained significantly higher amount of niacin (Fig. 3). These vitamins are required for proper development

and health of man. The presence of these vitamins supports the use of garden egg as a food delicacy in different parts of the world [9]. Aloia *et al.* [1] reported low concentrations of niacin in *Cucurbital moschata*.

The fresh leaves of *Amaranthus hybridus* showed substantial vitamin concentrations of ascorbic acid and thiamine (Fig. 3). Ofor [9] reported that *Dissotis rotundifolia* leaves contain high levels of retinol, tocopherol, thiamine and low level of ascorbic acid.

Poston *et al.* [3] reported low concentrations of thiamine in *Amaranthus* sp. This fluctuation in vitamin concentrations of *Amaranthus hybridus* could be due to difference in species Thohimma *et al.* [10].

In conclusion, *Cucurbital moschata* leaves could serve a better source of some vitamins than *Amaranthus hybridus L.*

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