

Comparative Analysis Of The Vitamin Composition Of Two Different Species Of Garden Egg (*Solanum Aethiopicum* And *Solanum Macrocarpon*).

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Abstract: The vitamin contents of two species of garden egg, *Solanumaethiopicum* and *Solanummacrocarpon*, were determined using spectrophotometric methods. The *Solanum aethiopicum* recorded higher concentrations (mg/100g) of retinol (53.550 ± 0.55), calciferol (0.010 ± 0.00), tocopherol (0.310 ± 0.00), thiamine (0.037 ± 0.00) and riboflavin (0.034 ± 0.00) while *Solanum macrocarpon* contained higher amount (mg/100g) of ascorbic acid (2.400 ± 0.00). The niacin contents of both species were relatively the same. *Solanum aethiopicum* could serve a better source of vitamins than *Solanum macrocarpon*.

Keywords: Vitamins, *Solanum aethiopicum* and *solanum macrocarpon*.

I. Introduction

Garden egg, also known as eggplant, is believed to have originated from India, China and other parts of Southeast Asia. The name eggplant or garden egg was given it by Europeans in the middle of eighteenth century because the variety they knew had fruits that were the shape and size of goose eggs (Tindall., 2008).

Garden egg has different species. There are over 100 species of *Solanum* which are indigenous to Africa and several of these have been developed as vegetables (Harlan and Wolfe, 2011). It is represented in Nigeria by some 25 species including those domesticated with their leaves, fruits or both eaten as vegetables or used in traditional medicine (Seyiarinlola, 2013). *Solanum aethiopicum* L. (The green-striped garden egg or scarlet egg-plant) has fruits that are round-shaped, striped with green. *Solanum macrocarpon* L. (Gboma eggplant) originated from Asia. The fruits are oval, white-green striped and bigger than *Solanum aethiopicum* (Michael, 2010).

The name vitamin arose initially from what was thought to be the need we have for certain vital chemical compounds-amines. However, it was later discovered that these chemical vital-amines were not all amines. Again it was realized that each vitamin is necessary for us and that we can obtain the vitamins from foods. A well balanced diet of natural foods generally provides the vitamin requirements of man. The lack of any particular vitamin soon manifests in a nutritional disease (avitaminosis) which is characteristic of that specific vitamin. Moreover, lack of vitamins predisposes very low resistance to diseases (Russel and Fehily, 2010). Vitamin is generally classified into two main groups: fat soluble and water soluble vitamins. Fat soluble vitamins are vitamins A (retinol), D(calciferol), E(tocopherol), and K(phyloquinone), while water soluble vitamins are B complex, B₂(riboflavin), B₃(niacin), C(ascorbic acid) and B₁(thiamine) Supplementation is important for the treatment of certain health problems (Fortmann *et al.*, 2013).

The work was aimed at determining and comparing the vitamin compositions of *Solanum aethiopicum* and *Solanum macrocarpon*.



Fig.1: *Solanum aethiopicum*(Micheal, 2010).



Fig.2: *Solanum macrocarpon* (Micheal, 2010).

II. Materials And Methods

Materials

Fresh *Solanum aethiopicum* and *Solanum macrocarpon* fruits were procured from Abakaliki main market, Ebonyi State, Nigeria. All chemicals and reagents were of analytical grade.

Methods

Determination of Vitamin Composition

The methods of Okwu and Josiah (2006) were used.

III. Results

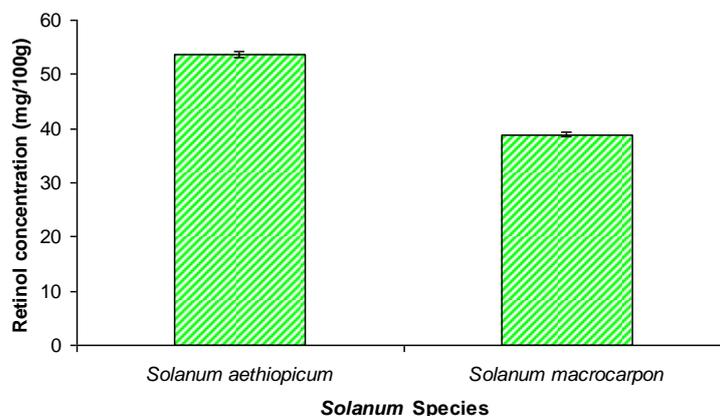


Fig. 3: Retinol concentration of *Solanum aethiopicum* and *Solanum macrocarpon* fruits

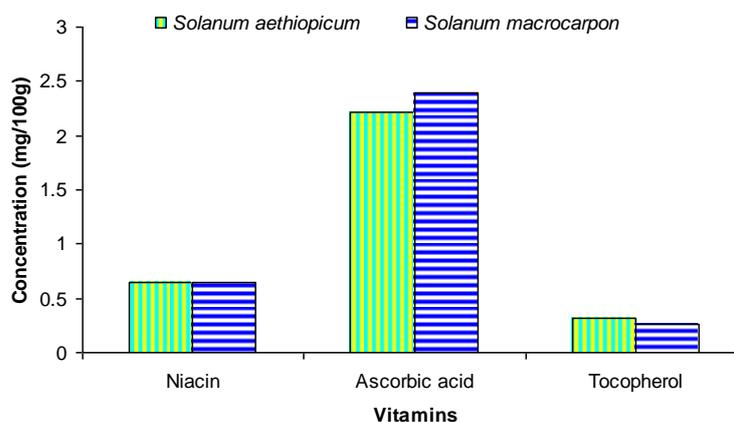


Fig. 4: Niacin, ascorbic acid and tocopherol concentrations of *Solanum aethiopicum* and *Solanum macrocarpon* fruits.

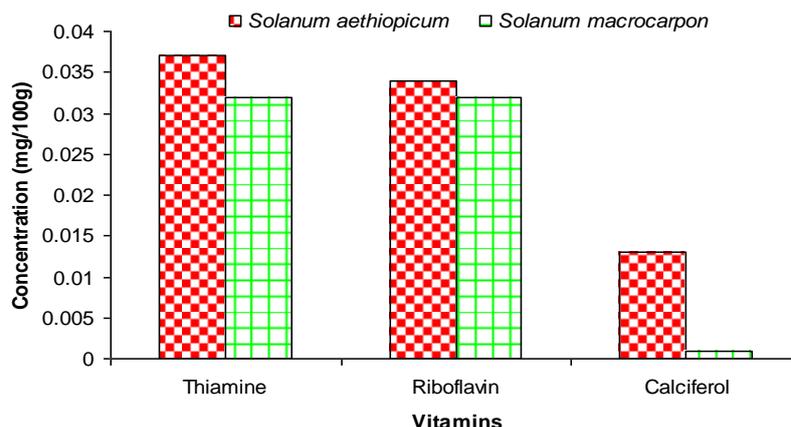


Fig. 5: Thiamine, riboflavin and calciferol concentrations of *Solanum aethiopicum* and *Solanum macrocarpon* fruits.

IV. Discussion And Conclusion

Investigation of the vitamin contents of the two species showed that both *Solanum aethiopicum* and *Solanum macrocarpon* contained vitamins such as retinol, thiamine, riboflavin, niacin, ascorbic acid, calciferol and tocopherol (Figs. 3, 4 and 5). This is in accordance with the work carried out by Agoreyo *et al.* (2012). Offor (2015) reported that *Dissotis rotundifolia* leaves contain high levels of retinol, tocopherol, thiamine and low level of ascorbic acid. 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 (Akuyili *et al.*, 2013).

Solanum aethiopicum recorded more of retinol, calciferol, tocopherol, thiamine and riboflavin than *Solanum macrocarpon* while *Solanum macrocarpon* had more of ascorbic acid (Figs. 3, 4 and 5). Achikanu *et al.* (2013) reported that *Solanum aethiopicum* has higher concentrations of most of the vitamins than *Solanum macrocarpon*.

Solanum aethiopicum and *Solanum macrocarpon* fruits contained relatively very high levels of retinol (Fig. 3). This could reconcile the study on the use of garden egg for the treatment of glaucoma as suggested by Akuyili *et al.* (2013). Retinol is important for normal vision, gene expression, growth and immune function by its maintenance of epithelial cell functions (Lukaski, 2004).

In conclusion, *Solanum aethiopicum* fruits could serve a better source of vitamins than *Solanum macrocarpon* fruits.

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