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A Review on Different Benefit for *Annona muricata* Fruits as Antioxidant

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Abstract

More than 200 chemical compounds have been identified and isolated from *Annona muricata* fruits and the most important such as alkaloids, phenols and acetogenins. Number of investigations have interested for this plant including antidiabetic, anticancer, anticonvulsant, anti-arthritic, anti-parasitic, antimalarial, analgesic hypotensive, anti-inflammatory and enhancing of immune system in addition to its content of high form antioxidants, which are vital to human health. Because these it the World Health Organization recommends the minimum consumption of fruit 120 kg/person/year.

Keywords *Annona muricata*, oxidation, health, cytotoxic activity, phytochemicals and traditional medicine

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Because the importance of the active materials of plants in agriculture and medicine has stimulated important scientific interest in the biological activities of these substances [1]. The appearance of *Annona muricata* (*A. muricata*) is an evergreen, the erect tree reaching from 5-8 m in height and open and the shape is a roundish canopy with large, glossy, dark green leaves. The fruits of the tree are large, heart-shaped and color green, the diameter between 15 and 20 cm [2]. *A. muricata* found in the warmest tropical region of Central and South America, Southeast Asia and Western Africa. It grows at high below 1200 m above sea level, and temperatures between 25 and 28 °C, with humidity between 60 and 80% [3].

The sixty or more kind of the genus Annona, family Annonaceae, the graviola, *A. muricata L.*, is the most tropical, the largest-fruited and it self well to preserving and processing. The leaves and bark tree contain cytotoxic acetogenins and also produces iso-quinoline and phenanthrene alkaloids. The Annonaceous acetogenins, lactones, alkaloids, tannins and coumarins are of a bioactive compound present in the Annona muricata leaves [4].

Ethno medicinal uses the fruit is as a natural medicine for arthritic pain, neuralgia, arthritis, diarrhea, dysentery, fever, malaria, parasites, rheumatism, skin rushes and worms, and it is also eaten stimulation to elevate a mother's milk after childbirth. In addition, the fruits are employed for the preparation of candy, ice creams, and syrups. In tropical Africa, the plant is used as an astringent, insecticide and pesticide agent and to treat coughs, pain and skin diseases. In India, used the fruit and flowers were employed as used against catarrh, while the root-bark and leaves as shown in figure (1) are benefit to have antiphlogistic and anthelmintic activities [2].

Traditional medicinal uses of *A. muricata* have been identified in tropical regions to treat

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diverse ailments such as fever, pain, respiratory and skin illness, bacterial infections, hypertension, inflammation, diabetes, predominately breast and prostate cancer [5,6].

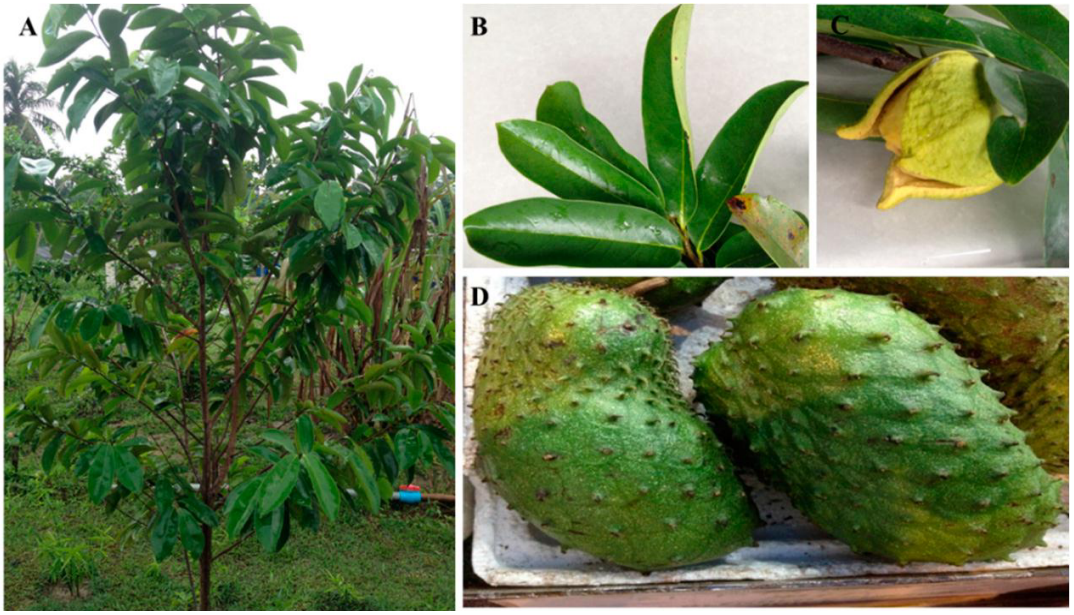

Figure 1. (A) *Annona muricata L.*; the appearance of the (B) leaves; (C) flowers and (D) fruits [2]

As shown in figure (2) the levels of non-enzymic antioxidants analyzed in fresh leaf of *A. muricata* are ascorbic acid and α-tocopherol. The ascorbic acid is distributed in both intracellular and extracellular fluid and is shown to function as scavenger for many free radical and the tocopherol is a protective agent that can act against the toxic effects of oxygen radicals within the membrane cell and can act as an excellent inhibitor of lipid peroxidation [7]. Many of bioactive compounds have been reported to be found in *A. muricata*. The major of phytochemicals has been identified by organic extract, but recently concentered have also been directed toward aqueous extracts. Several other compounds such as carbohydrates and essential oils [8,9].

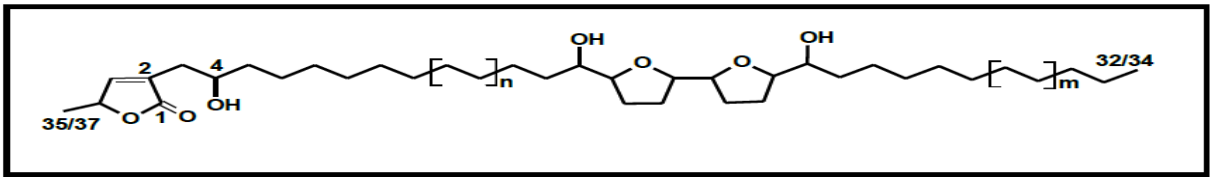

Figure 2. General structure of acetogenins [3]

There are many reported record the popular use the *A. muricata* in anticancer treatment. In addition of, ethnobotanically may be related to reports it assumed of its selective cytotoxic activity and this bioactivity is considered a selective as a some of the extracts studied in vitro were compered to be more toxic to cancer cell lines than to normal cells [8].

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