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MORPHO-ANATOMICAL, HISTOCHEMICAL, PHYSICO-CHEMICAL AND THIN LAYER CHROMATOGRAPHY ANALYSIS ON *Annona muricata* L. SEEDS

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ABSTRACT

Annona muricata L. belongs to the family annonaceae commonly called as soursop, is an interesting plant known for its edible fleshy fruit resembling *Annona squamosa*. Fruits and seeds of A. *muricata* are used in the folk medicine for treatment of various diseases. The fruit is known to possess anti-cancer properties and it is believed that consumption of the fruit may prevent cancer. In present investigation, the anatomical structure, histochemical localization of storage chemicals, physicochemical analysis, powder drug analysis and thin layer chromatography were performed on the mature seed. The anatomical structure shows the presence of multilayered seed coat with three different layers of testa namely exo, meso and endo testa, the tegmen is found to be collapsed. The rumination extends into the endosperm and idioblast cells are seen on the either side of thick walled rumination. Histochemical staining revealed that the endosperm is rich in lipids and proteins. Idioblast cells show positive colouration with different stains and reagent indicating the presence of various biochemical substances like alkaloids, lipids. Physicochemical analysis results, especially extractive values show that the seed is rich in phytochemicals. Powder drug and fluorescence analysis revealed the potential chemical properties of seed powder for evaluation as drug. Thin layer chromatography result indicated the presence of phenolic substances.

KEYWORDS: *Annona muricata* L. seeds, Morpho-anatomical, Histochemical, Physico-chemical, Thin Layer Chromatography.

INTRODUCTION

Annona muricata L. belongs to the family Annonaceae, commonly known as Soursop. *Annona muricata* L. is the important medicinal plant which shows many medicinal properties

Fruit of *Annona muricata* L.

Fruit is dark green, prickly (or bristled) fruits are egg-shaped and can be up to 30 centimetres (12 inch) long, with a moderately firm texture. Pulp is juicy, acidic, whitish, aromatic and possess abundant seeds. The creamy and delectable flesh of the fruit consists of 80% water, 1% protein, 18% carbohydrates and fair amount of vitamins B and C, potassium and dietary fiber (PIER, 2008). The average weight of 1000 fresh seeds is 470 grams and had an average oil content of 24%. When dried for 3 days in 60 C (140F) the average seed weight was 322 grams and were tolerant of the moisture extraction; showing no problems for long-term storage under reasonable conditions (Royal Botanical Garden, 2005). Stephens (1936), Corner (1952), Martinez (1952) and studied the variations in the fruit size and shape of *Annona muricata* and stated that the soursops are more or less oval or heart-shaped, sometimes irregular, lopsided or curved due to improper carpel development or insect injury. The fruit is compound and covered with a reticulated, leathery-appearing but tender, inedible, bitter skin from which protrude few or many stubby or more elongated and curved, soft, pliable, spines. The tips break off easily when the fruit is fully ripe. The skin of the immature fruit is usually dark-green, becoming slightly yellowish-green (Zayas, 1944).

MATERIALS AND METHODS

Source of the seeds: Mature ripen fruits of *Annona muricata* L. were purchased from the Koyambedu fruit market, Chennai. Seeds were removed from the ripen fruits, air-dried, stored in the refrigerator and used for this investigation.

Morpho-anatomical Studies: The seed was macroscopically examined for its organo-leptic