





Phytochemical Screening and Quantitative Analysis of *Annona muricata* Leaf Ethanolic Extract by Gas Chromatography-Flame Ionization Detection (GC-FID)

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Abstract	Article History
<p><i>Annona muricata</i> (soursop) leaves have been traditionally used for medicinal purposes due to its potential antioxidant, anti-inflammatory, anticancer, antimicrobial, and analgesic properties. This study quantitatively determined the phytochemical composition of soursop leaf. Using a BUCK M910 Gas Chromatography with a flame ionization detector, the analysis of phytochemicals was carried out. A 15 m x 250 0.15 RESTEK MXT-1 column was used. Helium 5.0pa.s was used as the carrier gas, flowing at a rate of 40 ml/min, with a splitless injection of 2ul of sample at a linear velocity of 30cm/s. The injector temperature was 280°C. At first, operating at 200°C, the oven was then increased to 330°C at a rate of 3°C per minute, and this temperature was maintained for 5min. An operating temperature of 320°C was used by the detector. The result shows that soursop ethanolic extract contains phytochemicals that belong to the broad class flavonoids (a class of polyphenolic compounds). They include naringenin (5.92 ug/ml), flavan-3 ol (5.70 mg/l), rutin (2.79 ug/ml), flavanones (3.28 ug/ml), kaempferol (6.15 ug/ml), flavone (1.99 ug/ml), proanthocyanin (2.36 ug/ml). Other polyphenols (not flavonoids) present include resveratrol (7.03 ug/ml), tannin (2.90 ug/ml), catechin (2.49 ug/ml), and epicatechin (7.67 ug/g). The alkaloids found include lunamarin (4.72 ug/ml) and spartein (2.07 ug/ml) while saponins found include sapogenin (16.07 ug/ml) and sapogenin (3.08 ug/ml). Other classes of phytochemicals found include steroids, cyanogenic glycoside, anti-nutrient, and cardiac glycosides. Soursop leaf contains bioactive compounds such as flavonoids, polyphenols, alkaloids, steroids, cyanogenic glycoside and other phytochemicals with medicinal potentials.</p> <p>Keywords: <i>Phytochemicals, secondary metabolites, soursop, GC-FID</i></p>	<p>Received: 02 Jan 2023 Accepted: 19 Jan 2023 Published: 30 Jan 2023</p> <div style="text-align: center;">  Scan QR code to view* License: CC BY 4.0*  Open Access article. </div>
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Introduction

Medicinal plants contain chemical compounds called phytochemicals that are good for human health and for the prevention of diseases (Adetuyi *et al.*, 2022; Mlozi, 2022). The term is often used to describe chemical substances like antioxidants that may have biological significance but are not recognized as essential nutrients. Some are responsible for color while others are responsible for organoleptic properties in plants. Up to 10,000 distinct phytochemicals, according to scientists, may have the ability to influence conditions including cancer, stroke, and metabolic syndrome (Egbuna *et al.*, 2019). However, plants are the main source of foods, medicines, fiber, clothing, shelters, and other materials used by people on a daily basis.

Annona muricata is a tropical fruit commonly known as soursop or graviola. It grows on a small evergreen tree and is native to the Caribbean, Central America, and South America (Prasad *et al.*, 2021). The fruit is oval in shape, green in color and has a prickly exterior with white flesh inside. Soursop is known for its sweet, tart flavor and is often used in smoothies, juice and ice cream. It has also been used for its medicinal properties, although more research is needed to fully understand its effects. The leaves of the *Annona muricata* (soursop) tree have been used in traditional medicine for a variety of ailments. It has antioxidant, anti-inflammatory, anticancer, antimicrobial, and analgesic properties (Prasad *et al.*, 2021; Mutakin *et al.*, 2022).