Isolation and Identification of Quercetin from the Leaves of Psidium guajava by Gas Chromatography-Mass Spectrometry and Evaluation of the Extract for Anti-Cancer Activity Using the Brine Shrimp Cytotoxicity Bio-Assay

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The species Psidium guajava, commonly known as Cuban White Guava, contains various phytoconstituents with have the potential for use in the pharmaceutical field. One of these phytoconstituents, Quercetin, has long been used in natural remedies and it is probable that it could be used for anti-cancer treatments. It is predicted that The compound Quercetin can be extracted, isolated, and quantified from the Psidium guajava plant and may exhibit anticancer properties due to the perceived medicinal properties of the mixture of phytoconstituents. To test this hypothesis a Guava plant was acquired, the leaves were dried and extracted using methanol, sonication and 50°C heat. Then the samples were derivatized with BSTFA in order to be run through the Gas Chromatography-Mass Spectrometry system for identification and quantitation. An initial test for anti-cancer properties known as the Brine Shrimp Cytotoxicity Bio-assay was run to determine the LC50. The concentrations used in the assay were 10 ug/mL, 100 ug/mL, 1000 ug/mL, and 0ug/mL served as a control. The results from the GC/MS system showed that Quercetin was in fact extracted and isolated from Psidium Guajava in a liquid and solid phase and concentrations of Quercetin in the extract in the solid and liquid phases were determined. From the Shrimp Cytotoxicity Bio-assay the data was deemed statistically significant at the top 5% and the LC50 was determined to be around 1000 ug/mL. These results all support my hypothesis that The compound Quercetin can be extracted, isolated, and quantified and may exhibit anticancer properties. These promising results show potential for further anti-cancer testing.

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