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Preliminary analysis of phytochemicals in different parts of Jack fruit tree (*Artocarpus heterophyllus* Lam) in Sri Lanka

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Jackfruit is the world's largest tree-borne fruit which is one of the greatest ancient fruits indigenous to Sri Lanka. The different parts of Jack fruit tree (*Artocarpus heterophyllus* Lam.) are associated with numerous medicinal characteristics and are employed in various traditional and folk systems of medicine to treat a variety of illnesses, particularly in the management of blood sugar. However, little research has been done on the phytochemicals found in the various parts of these plants, as well as their bioactivities. The goal of this research was to find out the screening and analysis of phytochemicals in seeds, bark, leaves, and fruits of the Jack fruit tree. The phytochemicals were assessed using conventional procedures. The different parts of *A. heterophyllu*s were collected from Jaffna District and their identification was authenticated at the Department of Botany, Faculty of Science, University of Jaffna. The ethanolic, methanolic and aqueous extracts of different parts of *A. heterophyllu*s were subjected to phytochemical screening and analysis based on standard laboratory procedures. The phytochemical analysis was done for three replicates of each plant part. The findings of the phytochemical screening of aqueous, ethanolic, and methanolic extracts showed that the presence of flavonoids, tannins, phenols, alkaloids, saponins, terpenoids, quinones, phytosterols, xanthoproteins, reducing sugars, carboxylic acids, and steroids in different parts of *A. heterophyllu*s indicating its potential therapeutic use. The aqueous extract of leaves had the highest total tannin (84.44±0.53 µg TAE/g) and alkaloid (183.30±11.52 mg/g) contents; the aqueous extract of fruits had the highest phenolic content (24.36±0.32 µg GAE/g), while methanolic extract of leaves had the highest flavonoid contents (144.85±0.53 µg QE/g) among the extracts. The findings are consistent with the presence of biologically active constituents in the different extracts of different parts of *A. heterophyllu*s. This obtained information may be helpful to use as documentation for quality control of nutraceuticals prepared with *A. heterophyllus*, in the future for the management of various disease conditions, including diabetes mellitus. Further, research should be carried out to separate the active phytochemicals and determine the anti-diabetic potentials by recommended methods.

Keywords: Analysis, *Artocarpus heterophyllus*, Jackfruit, Phytochemical, Screening

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