Phytochemical Analysis and Antioxidant Activity of Colocasia esculenta (L.) Leaves

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Abstract : Colocasia esculenta leaves and roots are widely used in Asian countries, such as, India, Srilanka and Pakistan, as food and feed material. The root is high in carbohydrates and rich in zinc. The leaves and stalks are often traditionally preserved to be eaten in dry season. Leaf juice is stimulant, expectorant, astringent, appetizer, and otalgia. Looking at the medicinal uses of the plant leaves; phytochemicals were extracted from the plant leaves and were characterized using Fourier-transform infrared spectroscopy (FTIR) to find the functional groups. Phytochemical analysis of Colocasia esculenta (L.) leaf was studied using three solvents (methanol, chloroform, and ethanol) with soxhlet apparatus. Powder of the leaves was employed to obtain the extracts, which was qualitatively and quantitatively analyzed for phytochemical content using standard methods. Phytochemical constituents were abundant in the leave extract. Leaf was found to have various phytochemicals such as alkaloids, glycosides, flavonoids, terpenoids, saponins, oxalates and phenols etc., which could have lot of medicinal benefits such as reducing headache, treatment of congestive heart failure, prevent oxidative cell damage etc. These phytochemicals were identified using UV spectrophotometer and results were presented. In order to find the antioxidant activity of the extract, DPPH (2,2-diphenyl-1-picrylhydrazyl) method was employed using ascorbic acid as standard. DPPH scavenging activity of ascorbic acid was found to be 84%, whereas for ethanol it was observed to be 78.92%, for methanol: 76.46% and for chloroform: 72.46%. Looking at the high antioxidant activity, Colocasia esculenta may be recommended for medicinal applications. The characterizations of functional groups were analyzed using FTIR spectroscopy.

Keywords : antioxidant activity, Colocasia esculenta, leaves, characterization, FTIR
Conference Title : ICCST 2018 : International Conference on Chemical Science and Technology
Conference Location : Paris, France
Conference Dates : December 27-28, 2018