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Essentials of plant taxonomy

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axonomy is closely related with the welfare of society as it relates the conservation of biodiversity and sustainable utilization L of plant resources and biological management. Taxonomy or plant systematic is branch of botany which deals with the arrangement characterization, nomenclature and evolutionary status of various plant groups including variation and speciation. The term Taxonomy was coined by A.P. de Candolle (1813). Taxonomic study and data accumulation can be carried out in fields, laboratory, gardens, libraries, herbarium and using computer which is based on certain principles, like - uniform system of expression, well illustrated characters, description, identification, classification and phylogenetic aspects, delimitation of plant groups, phenetic (similarities of the phenotype of the organism) and cladestic taxonomy (evolutionary features), International code of Botanical Nomenclature (ICBN) and as holistic science. There are four taxonomic fundamental components which simplify the process of identification up to species level. These components are identification, characterization, classification and naming. The aim of classification is to arrange large number of plants in a simplified manner for effective communication and understanding. The principle rank of classification is division, class, order, family, genus and species. Description is a precise method of communication about plants which provides characterization, identification, classification and phylogeny. Nomenclature is naming the plants in scientific manner. The ultimate goal of nomenclature is to provide a correct name for each taxon. ICBN follow certain principles to govern whole procedure of nomenclature which are (a) Botanical nomenclature is independent of Zoological nomenclature (b) The application of names of taxonomic group is determined by means of nomenclature type (c) Nomenclature of taxonomic group is based upon priority of publication (d) Each taxonomic group with a particular circumscription, position and rank can bear only one correct name (e) Scientific name are treated as Latin, regardless of their derivation (f) Rule of Nomenclature are retro-active unless specifically limited. In order to provide a correct name of taxon with the help of a specimen, there is a legal device known as typification which involves - holotype, isotype, lectotype, syntype, paratype and neotype. The principle priority of name does not apply to the names of taxa above the names of family. Priority of nomenclature of vascular plants begins with the publication of species plantarum by Linnaeus (May 01, 1753). The term species name is incomplete without referring to generic name which is singular Latinized noun or a word treated as noun and always written with an initial capital letter. A complete botanical name of a plant must be followed by the third element i.e. the name of the author who originally described the plant. Identification is to determine correct name and position for specimen. There are certain taxonomic institutions which help to identify correct botanical classification, phylogeny, flora and vegetation; these are Herbarium, Botanical Gardens, Botanical Survey of India and Taxonomic Literature. So, taxonomy is a dynamic science as one of the oldest as well as recent disciplines of botany which in other way is accumulation of the knowledge through orderly arrangement of plants.

Phytochemical and radical scavenging study of Anthocephalus Cadamba Linn. (Rubiaceae) fruits

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A nthocephalus Cadamba Linn. (Family; Rubiaceae) fruits were studied for its pharmacognosy and phytochemical analysis. Extracts of Anthocephalus Cadamba fruits were also screened for radical scavenging activity using DPPH, TRAP, TRAP, FRAP, etc. Powdered fruits were extracted with different solvents viz., benzene, chloroform, methanol and ethyl acetate using Soxhlet apparatus. All the solvent extracts were evaporated to dryness using rotary flash evaporator. Dry residue was dissolved in respective solvents and tested for antioxidant activity. Among solvents tested, methanol and ethyl acetate extracts showed significant antioxidant activity when compared to standard. Phytochemical analysis of the fruits of Anthocephalus Cadamba revealed that the phenolic compounds are mainly responsible for its activity. Further, ethyl acetate and methanol extract were applied on preparative chromatography, which lead to isolation of chlorgenic acid.