Wood anatomy and taxonomy of members of the genus Ocimum L. (Lamiaceae) and a variety in Nigeria

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Wood anatomy of three species of Ocimum Linn. and a variety namely O. basilicum, O. canum, O. gratissimum and O. basilicum var. purpurascens found in Ile-Ife Nigeria was investigated. This was done with a view to discovering additional characters that may be diagnostic and important in the identification and classification of the members of the genus. Anatomical procedures were carried out on the matured stem of each species after the collection of the sample from the field. Wood samples were sectioned into Transverse, Tangential longitudinal and Radial longitudinal sections with the aid of Sledge microtome. Safranin O and Alcian blue were used for staining. Small quantity of Potassium dichromate and 10% Nitric acid were used for maceration. Permanent slides were prepared and microscopic observation was done under different objective lenses to view vessel elements, parenchyma cells, libriform fibre, and rays of various shapes. The length and diameter of vessels, fibre length and height of ray cells were taken using ocular micrometer at ×40 objective lens and Statistical analysis was carried out using one way analysis of variance (ANOVA) with Mean separation using Duncan Multiple Range Test (DMRT). Intra generic wood anatomical characters of note in the genus include- diffuse vessel pitting and oblique vessel end walls. Multiseriate rays are diagnostic of O. gratissimum. Overall results show high level relatedness between O. basilicum var. purpurascens and O. gratissimum as against O. basilicum.

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A survey of morphological and anatomical characters in the subtribe Phymasperminae (A nthemideae, Asteraceae)

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The tribe Anthemideae of Asteraceae has been recently revised to now include a new subtribe Phymasperminae. This modification accommodates new molecular data. The earliest diverging lineages of the tribe have their centres within southern Africa and it is therefore thought that the Anthemideae have originated in this region. Phymasperminae which is one of six of these lineages, comprises three genera: Eumorphia (6 spp.), Gymnophyllum (1 sp.) and Phymaspernum (ca. 19 spp.). Generic and species delimitations and relationships within the subtribe are unclear. This study attempts to divide the main genus Phymaspernum into more manageable informal groups as well as to determine the relationships between these species and the species of Eumorphia and Gymnophyllum. Five groups around P. acerosum, P. athanasioides, P. parvifolium, P. erubescens and P. scoparia were identified according to their habit and floral morphology. The results of a detailed morphological and anatomical study (using light and scanning electron microscopy) of subtribe Phymasperminae is presented. The shape of the involucre, the number and shape of the bracts, the presence and number of pales as well as the number of florets were found to be taxonomically useful in distinguishing between species and species groups. Several fruit characters were also found to be taxonomically useful, such as the number of ribs, the presence of a pappus, myxogenic trichomes and resin canals.

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A phylogenetic classification of Asphodelaceae subfamily Aloioideae

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The family Asphodelaceae arguably contains some of the best known horticultural and medicinal plant species in the world. Subfamily Aloioideae currently comprises five genera mostly centred within southern Africa, with only Aloe extending to Madagascar, Arabia, the Canaries and the Comoros. The genera are largely diagnosed by overlapping suites of homoplasious morphological character states. Results from the analysis of plastid (rbcL, matK, trnL-psbA and the trnL intron) and nuclear (ITS1) sequence datasets in a large sampling of species are presented. Only the two small genera Astroloba and Gasteria are recovered as well-supported monophyletic lineages. Haworthia, as also indicated by previous studies, is clearly polyphyletic as presently circumscribed, with the species distributed among three clades corresponding to the current subgenera. Aloe (with the inclusion of Chortolirion) segregates into five, well-supported monophyletic lineages corresponding respectively to sections Dracolaeeae, Kumara, Macrifoliae, Aristatae, and the remainder of the genus. Sect Aristatae is strongly supported as a member of a clade comprising Astroloba + Haworthia subg. Robustipenduculares. The relationships among the remaining four Aloe lineages are, however, poorly resolved and, although indicative that Aloe may be polyphyletic, not conclusive at this stage. Significant generic recircumscriptions are indicated by the results and possible options are examined. Although morphological and molecular data are both consistent with expansion of the genus Aloe to include all members of Aloioideae, thereby returning to Salm-Dyck's (1836–63) conception of the genus, we propose a more conservative and likely more generally acceptable option. Astroloba and Gasteria are retained as currently circumscribed; Haworthia is split into three genera corresponding with the current subgenera; and Aloe sect. Aristatae is now treated as a new genus. The four remaining lineages in Aloe are treated as subgenera. This treatment renders all seven genera arguably monophyletic in available molecular analyses, with minimal nomenclatural disruption.

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The split-tongue Ascleps and their cousins - an overview

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The last full revision of Schizoglossum sensu lato was done by N.E. Brown in the Flora of tropical Africa (1902–1903) and Flora Capensis...