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A cladistic analysis of ndhF sequences from representative species of Saintpaulia and Streptocarpus subgenera Streptocarpus and Streptocarpella (Gesneriaceae).

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subsequent chloroplast capture may explain the discordance between the nuclear and organellar phylogenies. A sister group relationship between A. palmeri and A. ludoviciana (subg. Artemisia), is supported by the cpDNA data and is also strongly supported in the ITS phylogeny. Low sequence divergence for both data set within sect. Tridentatae limits the amount of phylogenetic resolution at the interspecific level. Furthermore, relationships within the section are only partially resolved. This is indicative of a recently differentiated and/or hybridizing polymorphic species complex. In addition, both data sets provide only equivocal evidence for either of two hypotheses regarding the origin and placement of sect. Tridentatae within Artemisia (s.l.).

594 MICHELE E. KRESGE[1]*, JAMES F. SMITH[1], MICHAEL MÖLLER[2] and QUENTIN C. B. CRONK[2,3]. [1]Boise State University, ID, USA, [2]Royal Botanic Garden Edinburgh, United Kingdom, [3]The University of Edinburgh, United Kingdom. - A cladistic analysis of ndhF sequences from representative species of Saintpaulia and Streptocarpus subgenera Streptocarpus and Streptocarpella (Gesneriaceae).

Two African genera of the Gesneriaceae, Saintpaulia and Streptocarpus are similar in many respects beyond their geographic distribution. Both genera have blue to purple flowers, pollen of similar shape and exine sculpting, embryos with one-celled, uninucleate chalazal haustoria, shared vegetative structures among some species, and are among the few genera with chromosome counts of n=15 in the Gesneriaceae. The similarity of these features have indicated that the two genera are likely to be closely related. This study examines the sequences of the chloroplast gene ndhF among several representative species of Saintpaulia and representatives of Streptocarpus subgenera Streptocarpella and Streptocarpus. The results of this analysis are congruenct with those of a previous analysis based on the nuclear ribosomal region, ITS with Saintpaulia nested within Streptocarpus section Streptocarpella. The results raise the possibility of the re-organization of these genera, and this is discussed. Comparisons between the data sets are made regarding utility of the two regions, sample size and outgroup.

595 KRON, KATHLEEN A. [1]* AND WALTER S. JUDD[2]. [1]Department of Biology, Wake Forest University, Winston-Salem, NC 27109-7325. [2]Department of Botany, University of Florida, Gainesville, FL 32611. - "Andromedeae" are paraphyletic based on morphological, *rbc*L, and *mat*K data (Ericaceae, subfam. Vaccinioideae).

Recent studies of the relationships of vaccinioids using matK sequence data have indicated that the Andromedeae, as currently recognized, are likely paraphyletic. However, sampling within the Andromedeae did not include representatives from all of the currently recognized genera in the group. This study presents a more in-depth analysis of the members of traditionally recognized Andromedeae. Twenty-nine taxa were analyzed for both morphological and molecular characters. One to four representative species from each genus placed in the currently recognized tribe Andromedeae (22 taxa in 15 genera), three representatives of the monophyletic Vaccinieae, and four taxa that functioned as the outgroup. Outgroup taxa were chosen based on preliminary analyses of larger data sets of both matK and rbcL sequence data. Trees were rooted with Enkianthus. The data from 69 morphological characters and complete nucleotide sequences of the chloroplast encoded rbcL and matK genes were analyzed using PAUP 3.1.1. Each data set was analyzed separately. In addition, the combined molecular data from rbcL and matK were analyzed and all three data sets combined and analyzed. Species were used as terminals in all analyses. All analyses indicate that the Andromedeae are paraphyletic. The Vaccinieae are nested within a clade containing Chamaedaphne, Andromeda, Zenobia, Leucothoe (likely paraphyletic), Tepuia, Diplycosia, and Gaultheria+Pernettya. Gaultheria is paraphyletic, with Pernettya nested within it. Sister to this large clade is a clade containing the Lyonia-group (Lyonia, Craibiodendron, Pieris, Agarista). Oxydendrum is sister to the remaining ingroup taxa.

596 KRON, KATHLEEN A. and SHELLEY L. JOHNSON*. Department of Biology, Wake Forest University, Winston-Salem, NC 27109-7325. - Phylogenetic analysis of the monotropoids and pyroloids (Ericaceae) using nrITS and 18s sequence data.

The achlorophyllous members of Ericaceae (monotropoids) have traditionally been considered a natural group, often recognized as a distinct family, the Monotropaceae. Likewise, the green herbaceous members (pyroloids) of Ericaceae have also traditionally been recognized as Pyrolaceae. Previous studies using nr18s sequences of selected members of monotropoids, pyroloids, and other ericads have indicated that the monotropoids and pyroloids are nested within Ericaceae. In these studies some trees indicated that the monotropoids were likely paraphyletic, with some members more closely related to some pyroloids. In order to test the hypothesis that the monotropoids are not monophyletic, additional taxa within the pyroloids and monotropoids were sampled for 18s and for nrITS sequence data. We sampled from eight of the ten genera recognized within the monotropoids and from all of the genera (4) recognized within the pyroloids for a total of 16 taxa.

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