Materials Towards a Revision of Aulotandra Gagnep. (Zingiberaceae)

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Abstract

Aulotandra Gagnep. has recently been transferred from the subfamily Alpinioideae, tribe Alpinieae, to the subfamily Siphonochiloideae. Materials towards a revision of Aulotandra and Siphonochilus J.M.Wood & Franks are presented.

Introduction

Harris et al. (2006) have included Aulotandra Gagnep. in a phylogenetic analysis in order to determine its correct place in the new classification of Zingiberaceae by Kress et al. (2002).

Aulotandra was, until recently, the only African genus of Zingiberaceae which had not been included in a molecular systematic study. Two molecular datasets, chloroplast and nuclear, placed Aulotandra closest to Siphonochilus J.M. Wood & Franks, showing that genetic divergence levels were smaller between accessions of Aulotandra and Siphonochilus than between Aulotandra and any other taxon included in the analysis.

In addition, phylogenetic analyses of the two data matrices showed that the species of Aulotandra and Siphonochilus sampled in that study formed a monophyletic group. It was clear from the shared synapomorphies and the high branch support for the clade containing these genera that this relationship was very close. The two data sets showed some discrepancy as to the relationships between these two genera - the ITS analysis indicating that Aulotandra was monophyletic, but the trnL-F results suggesting that the two genera were paraphyletic.

Accepting that Aulotandra and Siphonochilus form a monophyletic group led to the transfer of Aulotandra from subfamily Alpinioideae, tribe Alpinieae, to subfamily Siphonochiloideae. Taking this study further, it is clear that the species in subfamily Siphonochiloideae must be revised together.
Materials and Methods

A list of the names in Aulotandra, Siphonochilus and Kaempferia L. in Africa was compiled using the International Plant Names Index (www.ipni.org) and the World Checklist of Monocotyledons (http://www.kew.org/wcsp/home.do). Protologues were consulted and details of the type of each name were added. Where possible, the collector, collection number and herbarium location are given but, in some cases, it is not clear from the literature where types are to be found.

Results

In total, there are 30 names to be revised in the Siphonochiloideae, eight in Aulotandra, 12 in Siphonochilus, and 10 in Kaempferia. The majority of names are based on type specimens held at the Muséum national d’Histoire naturelle, Paris. A few are yet to be located; those collected by German botanists may have been lost.

Names in Aulotandra Gagnep.

Names in Siphonochilus J.M. Wood & Franks

   Type: Cienkowski s.n., Steudner s.n.
   Type: Poulsen & Liengola 1146 (holo, C; iso BR, E, K, MO).
   Type: Volkens 201 (B), Holst 3100 (B).
   Type: Carson s.n. (K).
   Type: Schweickert s.n. (PRE).
   Type: Prosch 12 (G).
   Type: Le Testu s.n. (P).
   Type: Kirk s.n. (K).
   Type: Wood 544 (K).
    Type: Dalziel 276 (K).
    Type: Congdon 46 (K).
    Type: Fries 1146 (UPS).

Names in Kaempferia L. in Africa

   Type: Welwitsch 683 (K).
   Type: Cecil 248 (K).
38: 142. 1899.
Type: *Dewève* 1021.
Type: not known.
Type: *Homblé* 851, 907.
Type: *Montagu* 888/21 (K).
Type: *Buchner* 694, *Mechow* 559b.
Type: *Kiener* s.n. (P).
Type: *Wood* 1942.
Type: *Le Testu* 563 (P).

**Recommendations**

Preliminary morphological observations and the sequence results presented by Harris *et al.* (2006) suggest that there may be only one genus in subfamily Siphonochilioideae. In order to test this hypothesis, a molecular and morphological study with wider sampling should be carried out to determine the relationships between the species and assess the limits of these two genera. All names listed above should be revised so that the number of accepted species, their distributions and their conservation status may be confidently known.

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**References**