

# TAXONOMIC AND NOMENCLATURAL NOTES ON PHILIPPINE FERNS. I. THE IDENTITY OF *ASPLENIUM ANISODONTUM* C.PRESL (ASPLENIACEAE)

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The synonymy of *Asplenium anisodontum* C.Presl (Aspleniaceae) in the Philippines is clarified. *Asplenium anisodontum* C.Presl, *A. longissimum* Blume and *A. caudatum* G.Forst. are different species. *A. anisodontum* C.Presl and *A. longissimum* Blume are both found in the Philippines. The presence of *Asplenium caudatum* G.Forst. in the Philippines is doubtful. *Asplenium acutiusculum* Blume is the same as *A. longissimum* Blume and the latter name should be accepted.

*Keywords.* *Asplenium caudatum*, Filicinae, Malesia, Pteridophyta.

## INTRODUCTION

In studying the taxonomic history of Philippine Aspleniaceae, it became clear that the synonymy of several species is confusing and in need of clarification. During the summers of 1994 and 1995 the author had the opportunity to study the type specimens and numerous other Philippine Aspleniaceae housed at Kew (K), The Natural History Museum, London (BM) and Leiden (L).

Copeland (1960) states in his *Fern Flora of the Philippines* that *Asplenium anisodontum* C.Presl has been considered by some modern authors to be the same as *Asplenium acutiusculum* Blume. He doubts the correctness of this idea. Christensen (1905) and Holttum (1968) consider *Asplenium anisodontum* C.Presl a synonym of *Asplenium acutiusculum* Blume. Price (1982) considers the holotype of *A. acutiusculum* Blume to be a smaller plant of *A. longissimum* Blume. Since both *A. acutiusculum* and *A. longissimum* were included by Blume (1828) on the same page, Price (1982) designated *A. longissimum* as the name of the species.

## *ASPLENIUM ACUTIUSCULUM* AND *A. LONGISSIMUM*

The Rijksherbarium at Leiden has the holotypes for both *A. longissimum* and *A. acutiusculum*. The holotype of *A. longissimum* Blume consists of a single sheet with a fertile frond section (the rhizome and stipe are missing), from Borneo, and without a collection number. There is a note from Price: ‘agreeing in all details with description, which only lacks the stated source, Borneo’. Another note from Rosenstock says: ‘*Asplenium longissimum*, 1915’. Two numbers can be seen on the sheet: ‘Herb. Lugd. Bat. No. 922.167–1020’ and ‘Leiden 5059 No. 54’.

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The holotype of *Asplenium acutiusculum* has Blume's name on it but no collection number. It consists of a single sheet with five sections of the lamina, without stipe or rhizome. Each section is almost the full length of the sheet; one is the frond apex. A note by Price says: 'matching the description in all details'. There is also a note from Rosenstock, 1915, naming it *Asplenium longissimum*. Again two numbers appear on the sheet: 'Herb. Lugd. Bat. 908.311-892' and 'Leiden 5059 No. 29'.

At BM there is a sheet with a section of frond, labelled '*Asplenium longissimum*' and marked 'TYPE'. Blume's name is on it but the collector is unknown; it is from the Kuching Hills, Sarawak, Borneo, and is dated 2 March 1914. This plant agrees with the Leiden type specimens of *A. acutiusculum* and *A. longissimum*.

The holotypes of *A. acutiusculum* and *A. longissimum* agree and should be considered conspecific. As Price (1982) correctly observed, the type of *A. acutiusculum* has smaller pinnae but otherwise is similar to *A. longissimum*. *Asplenium longissimum* Blume should be the accepted name as published by Price (1982).

#### *ASPLENIUM ANISODONTUM* AND *A. CAUDATUM*

*Asplenium anisodontum* was described by C. Presl (1849) from a specimen collected by Cuming (*Cuming* 128) in Luzon, Philippines. Duplicates of *Cuming* 128 are found at Prague (PR), K, BM and L. *Asplenium anisodontum* (*Cuming* 128) duplicates are readily distinguishable from *Asplenium longissimum* Blume by the length of the frond and the lamina apex. *A. longissimum* grows fronds up to 2m in length whereas those of *A. anisodontum* do not attain 1m. The frond apex of *A. longissimum* has indeterminate growth and extends into a lash which can take root; that of *A. anisodontum* shows determinate growth and ends in a terminal segment formed by the apparent fusion of the pinnae in the apical region (Table 1). Other differences can be observed in details of the pinnae. The species are clearly different.

Copeland (1960) thinks that *A. anisodontum* C.Presl is indistinguishable from *Asplenium caudatum* G.Forst.; Price (1982) places it in the complex of *A. caudatum* G.Forst.

Holtum (1968) comments that the type specimen of *A. anisodontum* (*Cuming* 128) in the herbarium Presl, at Charles University (PRC), Prague, has the 'pinnae distantly sharply toothed, not lobed as in *A. caudatum* Forster'. The BM herbarium has four sheets of *Cuming* 128, from Luzon. All four sheets have fertile fronds; one of the sheets is a mixed collection with *Tarachia truncatiloba* C.Presl (*Cuming* 99). Kew has two sheets, each with one fertile frond, of *Cuming* 128, also from Luzon. In L there are two sheets of *Cuming* 128 from the Philippines, each with a fertile frond. Rosenstock, in 1915, classified them as *Asplenium caudatum* G.Forst. var. *anisodontum* Kunze. One sheet with number 'Herb. Lugd. Bat. 908.304-749' has a very old label with the name *Asplenium anisodontum*; the other sheet, 'Herb. Lugd. Bat. 908.304-750', has been labelled 'isotypus' by C.V. Morton.

TABLE 1. Differences between *Asplenium anisodontum* C.Presl, *A. longissimum* Blume and *A. caudatum* G.Forst.

	<i>A. anisodontum</i> C.Presl	<i>A. longissimum</i> Blume	<i>A. caudatum</i> G.Forst
Frond length	up to 120cm	up to 200cm	up to 100cm
Lamina shape	lanceolate	elongated, attenuate at both ends	elongate oblong
Frond growth	determinate	indeterminate	determinate
Apical bud	present	not present	not present
Basal pinnae	not reduced, distant	reduced, distant	reduced, somewhat distant
Pinna	falcate	straight	straight
Pinna margin	toothed to shallowly lobed, lobes serrate	bluntly toothed lobes	lobed $\frac{1}{2}$ – $\frac{1}{3}$ to costa, lobes bluntly toothed
Acroscopic basal lobe	absent or slightly auricled	auricled on both sides	absent
Sori	one row, oblique, distant from pinna base	one row, oblique, distant from pinna base	two rows, parallel and oblique, close to pinna base

Georg Forster sent duplicates of *Asplenium caudatum* collected during his trip to Polynesia to at least six European herbaria (BM, GOET, LIV, MW, S, UPS), but he did not specify the type. At BM there is a well-preserved specimen collected by Forster on the islands of the Pacific Ocean, 'Insulae Oceani Pacifici'. This specimen has been subsequently labelled 'TYPE' at the museum. It consists of one, poorly pressed frond, with the rhizome and lower and middle portion of the stipe missing. The frond is fertile and fully developed. Another Forster specimen is housed at the Lomonosov State University of Moscow (MW). It is labelled 'SYNTYPUS', and was collected in Polynesia.

*Asplenium caudatum* differs from *A. anisodontum* in details of the pinnae and soral position (Table 1).

*A. caudatum* can be characterized thus: the lower pinnae gradually reduced; fertile bud absent; pinnae straight; pinna margin lobed with narrow sinuses cutting down  $\frac{1}{2}$ – $\frac{1}{3}$  to the costa; sori in two rows, one row almost parallel to the costa, beginning near the base of pinna. *Asplenium anisodontum* differs as follows: does not have the lower pinnae reduced; fertile bud present on the rachis; pinnae falcate; pinna margin notched, not lobed; sori in a single row, divergent, and distal from the pinna base.

## DISTRIBUTION AND ECOLOGY

*Asplenium longissimum* usually grows at low and middle altitudes near the base of trees, and rarely as an epiphyte close to the ground. It is distributed throughout Vietnam, Thailand, Borneo and the Philippines. *Asplenium anisodontum* commonly grows above 1000m altitude, and is found in Sumatra, Borneo, and the Philippine islands of Mindanao, Panay and Luzon. *Asplenium caudatum* is a low-altitude fern found in Polynesia. Neither *A. longissimum* nor *A. anisodontum* have been collected from Polynesia. The name of *Asplenium caudatum* G.Forst., as it has been commonly used for Asian and Malesian plants, represents a group of species, and needs further study.

## CONCLUSIONS

It can be concluded from the above observations that *Asplenium anisodontum* C.Presl is a distinct species, different from *A. longissimum* Blume and from *A. caudatum* G.Forst. In the Philippines, plants of *A. anisodontum* have traditionally been referred to *A. caudatum*, but none of the many Philippine specimens housed at BM or K agree with the type of *A. caudatum* G.Forst. It is doubtful, therefore, that the true *A. caudatum* is to be found in the Philippines. *Asplenium anisodontum* C.Presl was erroneously omitted from the *Checklist of Philippine Ferns* (Salgado, 1990), and this error should be corrected.

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