

NOTES RELATING TO THE FLORA OF BHUTAN: XXII
Asparagaceae: *Asparagus filicinus* and Convallariaceae:
Maianthemum oleraceum

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The variability of *Asparagus filicinus* Buch.-Ham. ex D. Don in the Sino-Himalayan region is discussed; the typical variety of this species has been generally misinterpreted. Three varieties are here treated and lectotypified: var. *filicinus*, var. *giraldii* C.H. Wright and var. *lycopodineus* Baker. The new combination *Maianthemum oleraceum* (Baker) Hook. f. & Thoms. ex Hook. f. var. *acuminatum* (Wang & Tang) Noltie is made.

Asparagus filicinus

A. filicinus Buch.-Ham. ex D. Don is a well-known and widespread Sino-Himalayan taxon. It is very variable and numerous varieties have been described at various times by Baker, J. D. Hooker, Wright and Wang & Tang. Variation is found particularly in the width and length of the cladodes and most authors have placed great weight on this character which appears not to be of taxonomic significance; it is suggested that pedicel length, number of cladodes per whorl in the ultimate branchlets and flower position are more useful diagnostic characters.

On looking at a large quantity of herbarium material at K, BM and E it is concluded that Baker was correct in treating *A. filicinus* as a single species with varieties, since although there are nodes of variation which would appear at first sight to be worthy of specific rank, there are many intermediates; subspecific rank might perhaps be appropriate for the taxa but since the plants are not well-known in the field, nor the ecology or control of the variation understood, it seems wisest to take a conservative approach for the sake of taxonomic stability. Unfortunately it emerges that Baker and subsequent authors have misunderstood Don's name and some resulting changes in the varietal names are necessary.

TYPIFICATION OF *A. FILICINUS*

A. filicinus was based on a Buchanan-Hamilton specimen from Nepal and published by Don (1825). Unusually for species described in this work an unambiguous type exists in BM labelled 'Asparagus filicina B Semba 2d June 1802' in Hamilton's writing and 'Napaul Dr Buchanan' in what is probably Don's writing. The specimen has the following diagnostic characters: cladodes inserted mainly in whorls of 5, falcate, to 10 x c. 0.7cm; pedicels very short (lower part c. 0.8mm, upper part c. 1.5mm), flowers c. 2.3mm long. The short pedicels are specifically mentioned in the protologue 'pedicellatis [sic] folio brevioribus'. Unfortunately, Baker (1875) seems to have ignored this and seems not to have seen the type and, therefore, misunderstood the species. He took the typical variety of the species to be the more widespread and common form with long pedicels, and described two short-pedicelled forms as var. *brevipes* and var. *brevifolius*. Hooker described a further variety with short pedicels (var. *microclada*) which is merely an immature state with cladodes that are not fully developed. Baker's concept has been

followed by subsequent authors including Hooker (1892) and Wang & Tang (1937, 1978).

The following synonymy can be made:

A. filicinus Buch.-Ham. ex D. Don, Prodrum Fl. Nep. 49 (1825).

Syn.: *A. filicinus* var. *brevipes* Baker in J. Linn. Soc. Bot. 14: 605 (1875).

Lectotype (selected here): Khasia, 3–4,000ft, *Hooker f. & Thomson* s.n. (K).

A. filicinus var. *brevifolius* Baker in J. Linn. Soc. Bot. 14: 605 (1875). Lectotype (selected here): Khasia, Syong, 5–6,000ft, 4 vii 1850, *Hooker f. & Thomson* s.n. (K).

A. filicinus var. *microclada* Hook. f., Fl. Brit. India 6: 315 (1892).

Lectotype (selected here): Assam, 1829, *Masters* s.n. (K).

Distribution: Nepal; Sikkim; Bhutan; NE India (Arunachal Pradesh, Nagaland, Meghalaya); Burma; China (Yunnan: *Henry* 12181, 12181A & B, 9865. Few specimens seen – apparently rare).

This variety is, in number of cladodes per whorl, cladode width and flower position, somewhat intermediate between the two following varieties (var. *girdalii* and var. *lycopodineus*).

LONG-PEDICELLED FORM

From the above it can be seen that a name is required for the long-pedicelled form at varietal rank. The earliest available name seems to be var. *girdalii* C.H. Wright, described from China.

A. filicinus var. **girdalii** C.H. Wright in Gardeners' Chronicle 44: 122 (1908). Lectotype (selected here): China, in monte Tui-kio-tsan, Shensi sett[entrionale], floruit in Horto bot.florentino, Majo 1898, *Girdali* 5 (on same sheet as *Girdali* 3, 4) (K).

[*A. filicinus* [var. *filicinus*] sensu Baker etc., non D. Don]

A. filicinus var. *megaphylla* Wang & Tang in Bull. Fan Mem. Inst. 7: 290 (1937) (merely a form with very large cladodes)

Distribution: Pakistan; Kashmir; India (Himachal Pradesh, Uttar Pradesh); Nepal; Bhutan; China (Yunnan, Sichuan, Kansu, Tibet, Hubei, Shensi).

A. FILICINUS VAR. LYCOPODINEUS

The epithet *lycopodineus* was coined by Wallich but first validly published at varietal rank by Baker (1875) citing specimens from NE India. Its characteristics are having flowers restricted to the base of the ultimate branches, short pedicels, and cladodes inserted in threes. Forms with very broad cladodes occur (especially in China) and were described by Wang & Tang (1937) as var. *sessilis* under *A. lycopodineus* (thereby, but without clearly so stating, raising the latter to specific rank). However, there are too many intermediate specimens to follow their treatment, although they are clearly correct in their later account (Wang & Tang, 1978) in distinguishing long- from short-pedicelled

forms. The latter (for the reasons given above) they called *A. filicinus* [s.s.] and the latter *A. lycopodineus* (under which they included var. *brevipes* and their var. *sessilis*).

Asparagus filicinus var. **lycopodineus** Baker in J. Linn. Soc. Bot. 14: 605 (1875).
Lectotype (selected here): Arunachal Pradesh, Mishmee, Griffith HEIC 5854 K).

A. lycopodineus (Baker) Wang & Tang in Bull. Fan Mem. Inst. Biol.
7:291 (1937) and Fl. Reip. Pop. Sinicae 15(2):105 (1978)

A. lycopodineus var. *sessilis* Wang & Tang in Bull. Fan. Mem. Inst.
Biol. 7:291 (1937)

Distribution: Sikkim, Bhutan, NE India (Nagaland, Arunachal Pradesh); Burma; China (Sichuan, Kweichow, Yunnan).

It should be noted that Handel-Mazzetti (1936) included both short and long pedicelled forms in his concept of var. *lycopodineus*, relying solely on cladode width to distinguish the variety.

KEY TO TAXA

1. Pedicels longer than cladodes, evenly spaced along ultimate branchlets; cladodes in whorls of 4 to 7 _____ **A. filicinus** var. **giraldii**
- + Pedicels shorter than cladodes, restricted to base of ultimate branchlets _____ 2
2. Cladodes wide (over 1.2mm), strictly in whorls of 3; stems erect; flowers large (c. 4mm long) _____ **A. filicinus** var. **lycopodineus**
- + Cladodes narrow (commonly under 1mm), almost always in whorls of 4 or 5; stems often flexuous; flowers smaller (under 3.5mm long) **A. filicinus** var. **filicinus**

Maianthemum oleraceum

When La Frankie (1986) transferred all the species of *Smilacina* Desf. to the genus *Maianthemum* G.H. Weber, he did not deal with any infra-specific taxa. Hara, just before his death, had nearly completed a revision of the Asiatic species of *Smilacina*, which was published posthumously (Hara, 1987). Hara did treat infraspecific taxa, but had not seen La Frankie's paper, and therefore several infraspecific combinations remain to be made.

As in other genera of Himalayan Convallariaceae (especially *Ophiopogon* and *Polygonatum*), *Maianthemum* species are extremely variable defying easy taxonomic treatment, with clearly marked forms being linked by intermediates and discrete taxonomic entities almost impossible to define. The ESİK expedition to W Sikkim in 1992 provided an opportunity to study the variability of two species of *Maianthemum* in the field. It was found that *M. purpureum* (Wall.) La Frankie occurred over a wide altitudinal range, and merely decreased in size with altitude. The dwarf, high altitude, form was originally described as *Tovaria oligophylla* Baker and reduced to a forma of *S. purpurea* by Hara; but this sort of clinal variation seems not to be worth recognizing taxonomically. In contrast, the pattern of variation in *M. oleraceum* (Baker) La Frankie was found to be different. In fir forest up to 3400m, the typical form with dense panicles of white or mauve-flushed flowers and a straight inflorescence axis occurred. Above this altitude,

the typical form was replaced by a strikingly beautiful one with flowers varying from dark claret-coloured to almost black (a particularly dark form, hopefully introduced into cultivation, being given the informal name in the field of 'McBeath's Glory') this also differed in having more open inflorescences arranged on a zig-zag axis.

Examination of herbaria reveals that these striking field-differences are less distinct after drying. Specimens with poor notes on flower colour, and ones collected in fruit, cannot be identified with certainty. Intermediate specimens, with pale flowers but open panicles, also seem to occur. Further work is clearly needed to investigate the control of such variation, but in the meantime it is worth recognizing the dark-flowered form, originally described as *S. oleracea* var. *acuminata* Wang and Tang. Hara reduced this to a forma, but as the distinction seems to be related to altitude, varietal status seems more appropriate, and thus the new combination is needed:

Maianthemum oleraceum (Baker) Hook. f. & Thoms. ex Hook. f. *Fl. Brit. India* 6: 323 (1892) var. ***acuminatum*** (Wang and Tang) Noltie, **comb. nov.**

Smilacina oleracea var. *acuminata* Wang & Tang in Bull Fan Mem.

Inst. 7: 288 (1937). Type: Chumbi, Yatung, H.E. Hobson s.n. (holo. K).

Specimens of this variety have been seen only from E Nepal, Bhutan and Chumbi, whereas var. *oleraceum* extends further east into N Burma, NW Yunnan, Sichuan and Kweichow.

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