Arisaemas from the subsection ATTENUATA or *A. bockii* and its friends

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All this story began a few month ago, on the WEB: *A. bockii* had been rediscovered and seed distributed among American arisaema lovers, via the NARGS namely! Some plants were reaching maturity and flowered for the first time. Of course, many owners were looking for information on this species and discovered that all we had at hand, was in form of a large question mark. A discussion ensued with exchange of photos, slides, between amateurs and professionals, and it soon appeared that two different species, at least, are currently widespread under this name. Indeed, some seed came from Russia, other directly from China. A common point? Yes, unfortunately no one was accompanied by any collection data. The very question was: "What species are we speaking of?" This is particularly true when discussing about *A. bockii* because, to say the least, the species is not completely known even in the scientific literature, but we will come back to this point later. I just want to underline the immense advantage of having again the possibility to sow seed collected in the wild with all related field notes. That is what has recently be done by some members of the NARGS during their collecting trip in China. Moreover, as they had the kindness to offer seed to the exchange list, we have, I feel, a unique chance to grow these species again and to think about some problems of taxonomy, which, in our case look like a detective novel.

ATTENUATA is a name created by Engler, at the beginning of the century, to include many arisaema species. Recently, however, this section was abandoned by J. Murata (1984) who pointed out that it was too heterogeneous and consisted of two geographically and morphologically distinct groups of species. Indeed, some are native of Indo-Chinese and Malaysian countries, with evergreen leaves and usually, as in arums, neuters or sterile bristle-like flowers on their spadices. Murata places these in the section FIMBRIATA. The remaining species are found in SW China, they have deciduous leaves and no neuters and were rightly related by J. Murata to section TORTUOSA. But these last species, with a sympatric distribution, have many characters in common which are not shared by others members of section TORTUOSA. For this reason we will keep Engler's name ATTENUATA for them, but with a new signification, at a subsectional level only.

Recently, it has become easier to travel in China. Areas which are not considered as tourists spots are now open to foreign tourists. This is particularly interesting for us, plants lovers. Many species were discovered a long time ago but either they were not introduced into cultivation or either were progressively lost. By now, many of them are again collected and with our modern techniques of multiplication, one can reasonably assume that they will soon become available in the trade. For this reason, it seems to be the right moment to have a look at some of the least widespread Chinese species belonging to ATTENUATA and related to well-known plants such as *A. tortuosum* (Wall.) Schott and *A. dracontium* (L.) Schott which are widely cultivated in our gardens, and at all the members of section TORTUOSA.

Although the species we have in mind have a less stately appearance, nevertheless they can be considered as quite handsome. Like their taller relatives, one or two leaves emerge from the pseudostem but with a smaller number of leaflets, usually not exceeding 5, and the peduncle on which is borne an inflorescence, without any conspicuous markings. The spathe is commonly green

fading yellow, or whitish in one species as we will see further. The spadix is always long exserted from the spathe-tube, extending in a long tapering tail.
Having established their common characteristics, let us turn to the differences between the two leading species: *A. bathycoleum* Hand.-Mazt. and *A. yunnanense* Buchet. If the first is quite solitary; the second, on the contrary, has many relatives.

A. bathycoleum, a small species, can be identified at once in the wild: its unique leaf, at most trifoliolate or even simple is an uncommon feature among adult arisaemas. Moreover, when three linear lanceolate folioles are present, the angle between the midveins of the central leaflet and its neighbours is less than 90¡, also a quite unusual disposition often compared to a birds foot. The plain green inflorescence looks like a long tube ending in a narrow acute limb. Its spadix-appendage ends in a long green or purple thin thread curved down, sometimes to the ground. *A. bathycoleum* grows in Yunnan where the tallest specimens reach up to 40 cm. We saw many flowering specimens in July, in rocky meadows around Lijiang. As this species is quite distinct and doesn't vary, it had the good luck to be described under one name only and without any varieties.

As *A. yunnanense* is one of the commonest arisaema in Yunnan, this name suits it well. But apart N. Yunnan, it is also found in the neighbouring provinces, in S.W. Sichuan and W. Guizhou. As a result of its wide distribution, some confusion arises. This species is a medium sized-plant, still with a green inflorescence but its elongated spadix-appendage, well exserted from the spathe-tube, has the usual S-shape, as in *A. tortuosum*, and is erect before fading. One or two leaves are present; the leaflets are ovate, shortly petiolulate or subsessile, the margins are entire or serrate, the apical part is obtuse. Buchet's description corresponds to specimens with trifoliolate leaves. We indeed came across this species namely near Dali where it grows abundantly in quite dry conditions, among rocky meadows, often at the foot of bushes.

G. Forrest collected similar species, one in Lijiang area and the other, with wider leaflets, near Dali. Engler described them and named them respectively *A. talense* and *A. talense var. latisectum*. But he also honestly noted that he never saw *A. yunnanense*. Of course, he correctly put both species in the same section, ATTENUATA. Things were complicated, because the specimens of *A. yunnanense* were deposited in the Herbarium of the Museum at Paris, while Edinburgh Herbarium was entrusted with *A. talense*. Of course one can easily understand that half a century elapsed before the synonymy of *A. talense* and *A. yunnanense* was recognised and published by H. Li in her Flora of China (1979).

Some twenty years before, Engler also described another related species as *A. bockii.* Bock von Rosthorn collected this species eastward in SE Sichuan, near Nanchuan, quite at the same latitude. Unfortunately, the collection was made in September and the plants were out of flowers, the fruiting spike illustrated in Engler's Das Pflanzenreich only shows a sessile spadix-appendage typical of the members of the group ATTENUATA: "Spatha ignota" Engler says (spathe unknown). The figure illustrates a one-leafed specimen with five leaflets well in the style of *A. yunnanense*. This species has been put in cultivation again by the BG of Moscow and distributed through the NARGS seed exchange. Let us note that the first pictures of plants grown from these seeds match Engler's description quite well. When in Dali, we saw many specimens in flower and, amazingly, we noticed plants with three and five leaflets and one or two leaves growing side-by-side, sometimes variegated, all with the same inflorescences. All these "species" obviously appear to be nothing more than variations on a common theme and fall in the normal variation range of *A. yunnanense*. Remember that arisaemas are unsurpassable in this regard.

Arisaemas are exceptional among the aroids by their paradioecious behaviour: every new growing season, depending e.g. on environmental conditions, the spadix bears male flowers only when the corm is small or on weak specimens. Adult specimens, in good conditions, usually develop female flowers only. That is the rule for *A. yunnanense* and *A. bathycoleum*. On the other hand, other species, such as *A. tortuosum* , bear bisexual spadices when mature. This is what happens with the two following ATTENUATAS.

A. eprazeri Hook. f. is not endemic in China. It is widespread in the border regions of S Yunnan, N Thailand and N Myanmar (Burma) at low altitude, below 1,800 m and enjoys more tropical conditions. All authors agree to put this species in the vicinity of *A. yunnanense*. It has one or two trifoliolate leaves, shortly petiolulate leaflets, green inflorescence and an elongate spadix-appendix, 8-10 cm long. Nevertheless, some differences can be pointed out, such as an inflorescence sometimes slightly glaucous and purple tinged in its upper part and, as already above-mentioned, a bisexual spadix when mature.

Let us point out that, in the past, most arisaemas were collected by one traveller, often a missionary, a diplomat,É and described later, by another person on the basis of a few, one or two pressed herbarium specimens. It was thus impossible for botanists, working in their offices, to appreciate the natural variations and evaluate the possible synonymies. Today these descriptions still spread confusion in arisaema taxonomy.

On the contrary, *A. odoratum* J. Murata et S.K. Wu is somewhat a simpler case. It has been found recently by a Sino-Japanese expedition (1993) in an area NW of Kunming, around 1,400 m. According to the original description, *A. odoratum* looks like a small version of *A. yunnanense*. but with a white flower, a bisexual spadix and a chromosome number which is one of the smallest of all arisaemas, 2n = 22 in place of the usual count 2n = 28. A colour photo of a flowering specimen taken in the wild illustrated the original paper. It is an appreciable surprise, a kind of premi_re. Moreover, the description is based on living specimens observed in their habitat.

We never saw any specimen of *A. odoratum* which, to our knowledge, is not yet in cultivation. We are all impatient for seed to become available. This way, we could appreciate its fragrant inflorescence, said to smell of Michellia or Jasmine. Let us hope that Botanical Gardens who have it in cultivation will contribute to its diffusion.