

ARISAEMA CAUDATUM ENGL.—ITS IDENTITY, TYPIIFICATION AND AFFINITIES

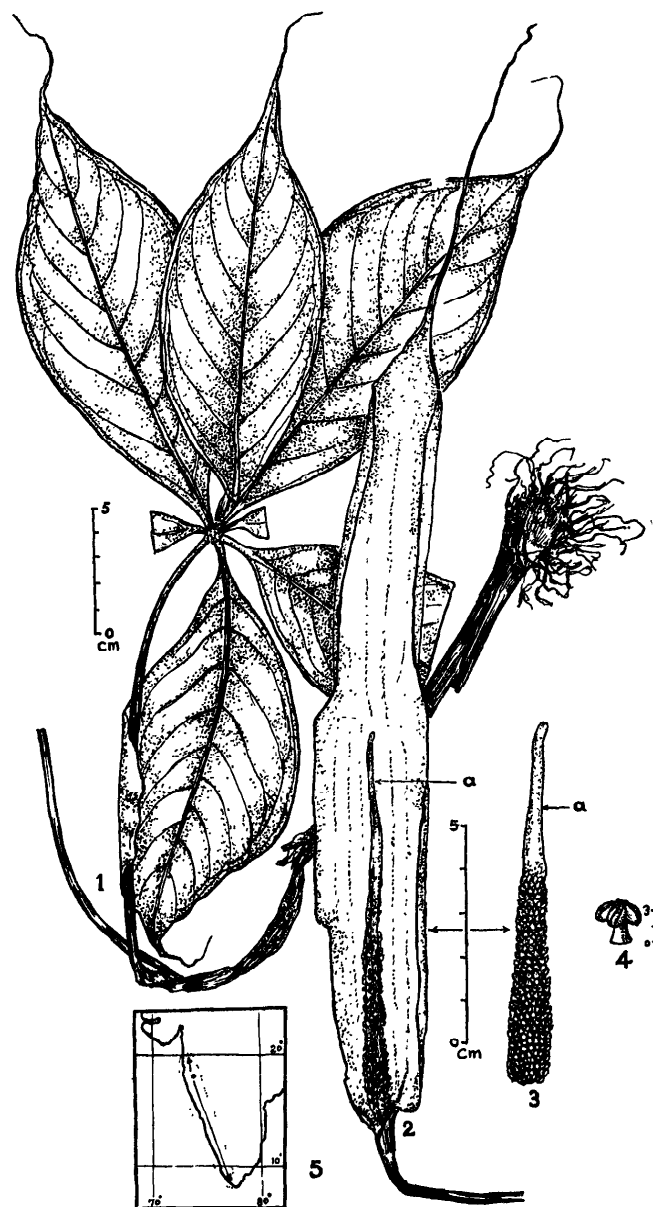
A few specimens of *Arisaema* recently collected from Bhikauli forest, Mahabaleshwar (1960) and Panchgani plateau (1968), Western ghats, Maharashtra State have been compared with *A. leschenaultii* Bl., while examining them at Central National Herbarium, Calcutta. They do not, however, match with any of the known Indian species. This has led to a more critical study of the taxon both in the field and the herbarium, keeping in view of the very little known species of Engler *A. caudatum* which is said to be collected from Concan by Stocks. As such, more material of the taxon from the type range was gathered and found to show considerable variation in size from very small to robust forms and in the number of leaflets. While examining the robust forms, the newly described species of Blatter *A. longicaudatum* collected from Panchgani plateau was also studied. Interestingly enough, all these collections including those of *A. longicaudatum* have ultimately turned out to be only one species, *A. caudatum*. A sample material has also been checked up at Kew herbarium where *A. caudatum* is represented by only one drawing.

Arisaema caudatum was described by Engler (1879) from a badly dried specimen collected by Stocks (Hook. f. et Thoms. Herb. Ind. Or.). Later Hooker f. (1893) described the species based only on the drawing by Stocks. Cooke's remark (1904-1908) and the recent communication from Kew confirm that the species is represented at Kew by Stocks' drawing only without any specimen.

As such, it has become necessary to amend the characters of the taxon based on fresh material and to elaborate the description together with its synonymy.

A. caudatum Engl. in DC. Monogr. Phan. 2:559, 1879 *emend. descr.* Rolla Rao et Ahuja; Hooker f. in Fl. Brit. Ind. 6: 508, 1893; Engl. in Pflanzenr. 4, 23F, 183, 1920; Journ. Bomb. nat. His. Soc. 35:19, 1931; Chatterjee in Bull. Bot. Soc. Beng. 8:122, 1954. *A. longicaudatum* Blatt. in Journ. As. Soc. Beng. 26:365, 1931 & in Journ. Bomb. nat. Hist. Soc. 35: 20, 1931; Chatterjee in Bull. Bot. Soc. Beng. 8: 128, 1954.

Erect, annual herb upto 1 m, dioecious. *Tuber* globose, depressed, 2 cm in diam., roots many arising from the upper side of the tuber. *Leaf* solitary or sometimes two, petiolate, digitate; leaflets 7 (sometimes 5 or 8), sessile or subsessile, ovate or oblong-



Arisaema caudatum Engl.

Figs. 1-5: 1. Habit. 2. Male spadix with spathe (a-appendix). 3. Young female spadix (a-appendix). 4. Male flower. 5. Map of western India showing Mahabaleshwar, the place of collection and the range of its possible occurrence along the Western ghats, towards north and south of Mahabaleshwar.

lanceolate, shortly cuneate at base, apex caudate-acuminate, margin entire, intra-marginal veins two, primary nerves many, anastomosing into the inner intra-marginal vein. Peduncle 25-30 cm, lower portion sheathed by the petiole. *Male spathe* 20-25 cm long, green with pale whitish-green stripes, tube cylindric, 7-10 cm long, 4 cm broad, slightly con-

stricted at the top then broadening into a limb ± 7 cm long, 2.5-3 cm broad ending into 8-13 cm long acumin. *Spadix* 8-9 cm long, floriferous part 4-5 cm, appendix cylindric or slightly thickened at the base, apex obtuse, 4 cm long; male flowers laxly arranged, stamens white, usually filaments of 3 anthers unite carrying the anther lobes which are subglobose, opening by apical slits. *Female spathe* like male (only one female plant was collected). *Spadix* 7 cm long, floriferous part 3.5 cm; female flowers spirally arranged; ovaries sub-spherical, unilocular with 1-3 ovules, style short, stigma flat, disc-like.

Engler while describing the species (1879 & 1920) cites only one specimen collected by Stocks from Concan under the label *Hook. f. et Thoms. Herb. Ind. Or.* noted as *A. curvatum* Schott. This specimen which is the *Holotype* was undoubtedly obtained from the Kew Herbarium for his study. If that be the case, what has happened to that specimen? Hooker f. (1893) did not mention about this specimen at all. He only mentions that he had not seen any specimen and that his description was based on Stocks' drawing which is available at Kew even now. It is not quite clear whether there is any old correspondence between Engler and Hooker f. about the loan of Stocks specimen from Kew. Verification from various herbaria in India, U.K. and Continent reveals that no such specimen is available so as to designate it as *type*. As such, following the International rules of nomenclature, a *Neotype* has to be designated as there is no trace of type material of whatever category indicated in the Code. Hence the recently collected specimen from Mahabaleshwar has been designated as the *Neotype* of *A. caudatum* Engler which is deposited in the Central National Herbarium, Botanical Survey of India, Calcutta (CAL) and the duplicates of the same are distributed to other herbaria of the World (Kew, Leiden and Berlin) as enumerated at the end.

It is quite possible that Stocks' specimen as examined by Engler contained a broken appendix which was measured by him as 1.5 cm and further it is described as stipitate. Scrutiny of wide range of material clearly indicates that the appendix is mostly 4 cm long whether the plant is small or robust and it is more or less clavate and very slightly thickened at the base as seen in the fresh material. Further, the long drawn-out whip-like tip of leaflets is also wrongly indicated as 1-1.5 cm by Engler which is distinctly 4-5 cm long. The variation in size of the plant is however, remarkable ranging from 50 to 100 cm in height. Interestingly enough, such wrong

record of measurements and characters of this taxon by Engler might have led Blatter to describe another species *A. longecaudatum* collected from the Concan ghats, Mahabaleshwar and Panchgani with measurements as noted for *A. caudatum* in the present emended description. As such, it is considered that *A. caudatum* Engl. or *A. longecaudatum* Blatt. refer to one and the same species.

Normally, characters such as the number and apices of leaflets, colour and apex of spathe and shape and length of appendix are utilised for the identification of different species. Taking these characters into consideration *A. caudatum* can be readily distinguished from its allied species, *A. leschenaultii* Bl. and *A. fraternum* Schott by the presence of long whip-like apices of the leaflets and the spathe, though it shares with them the character of the cylindric or slightly clavate appendix. *A. consanguineum* Schott has the leaflets and spathe with whip-like apices but the number of the leaflets is more and so also the shape and the size of the leaflets are different.

In view of the characters of leaflets and appendix as given in the present amended description, the position of *A. caudatum* in the key as given by Engler (171, 1920) gets altered, though it remains under the same section *Clavata* Engler. Chatterjee (119, 1954) however, could not assign any position for this species in his key for the Indo-Burmese species of *Arisaema*. His key can now be amended as follows, so as to signify the position of *A. caudatum* along with its closely allied species.

Leaflets 7-17:	
Limb of the spathe erect or sub-erect:	
Appendix cylindric or clavate, obtuse:	
Apex of leaflets long, filiform:	
Leaflets 10-20 (usually 15), narrowly lanceolate	.. <i>consanguineum</i>
Leaflets 7 (sometimes 5 or 8), oblong-lanceolate	.. <i>caudatum</i>
Apex of leaflets acute:	
Appendix tip spinescent	.. <i>echinatum</i>
Appendix tip smooth:	..
South India	.. <i>leschenaultii</i>
Khasi hills	.. <i>fraternum</i>
Appendix tapering, tip acute or globulate:	

Distribution: The genus with more than 100 species occurs throughout the tropics of the World. In India, it is represented by about 37 species.

The record of the locality as Concan by Stocks for his possibly single collection, described and typified by Engler, is rather vague, as 'Concan' represents an extensive belt of West-coast covering lower slopes of the Western ghats and the coastal region from Igatpuri ranges to Goa or even upto Mangalore. However, on the basis of present collec-

tions, it is evident that the species grows fairly common in selected habitats along Mahabaleshwar and Panchgani plateau, particularly along the protected slopy rocky crevices and also during specific period, particularly mid-monsoon (Possibly August-September) and this may be the reason for its not being located along the other wet regions of the Western ghats besides the Mahabaleshwar ranges. However, the nature of growth and the availability of the species along the Mahabaleshwar ranges, suggest the possibility of its distribution along the Western ghats from the Igatpuri ranges to as far as Coorg or even Kerala ghats. But it is also equally possible that the taxon might be endemic to the Mahabaleshwar ghats only including a few adjoining slopes as the intensive collections so far made by the Western Circle of the Botanical Survey of India from the various parts along the Western ghats even during mid-monsoon periods, did not reveal this species. However, with the present note which clarifies the species considerably, further records of the same along the Western ghats, if not from other parts of India may also be possible.

Specimens examined: Panchgani plateau near Mahabaleshwar, *Ansari* 105095A (*Neotype*, CAL); *Ansari* 105095B (BSI); *Ansari* 105095C (K); *Ansari* 105095D (L); *Ansari* 105095E (B); Bhikauli forest, Mahabaleshwar-Satara road, *Rolla* 62344 (BSI). Near Wilson point, Mahabaleshwar, *Bole* 1961 (BLATT). Near bus stand, Mahabaleshwar, *Bole* 2011 (BLATT). Madhu kosh, Mahabaleshwar, *Santapau* 13088, 13089 (BLATT).

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A NEW VARIETY OF *LEUCAS MOLLISSIMA* WALL. FROM ANDHRA PRADESH

Leucas mollissima* Wall. var. *sebastiana
Subbarao et Kumari var. novo.

Accedit ad Leucas mollissima Wall. var. *mollissimam*; differt tamen foliis utrinque dense velutinis magis vero in facie inferiore, foliorumque basibus generatim cordatis vel rotundatis et nonnumquam cuneatis.

Allied to *Leucas mollissima* Wall. var. *mollissima* but differs from it in having leaves densely velvety tomentose on both sides, more so on the lower surface; the leaf base variable cordate or rounded or sometimes cuneate.

Erect herbs, 80-120 cm high; stem quadrangular, covered with silky villous deflexed adpressed hairs; branches slender, slightly bending at the top. Leaves opposite, ovate or ovate-lanceolate, acute, serrate to dentate, cordate or rounded or occasionally cuneate at the base, densely velvety tomentose on both sides more so on the lower surface; lamina 1.4-6 × 0.8-3.8 cm; lateral nerves and midrib obscure above and prominent below; petiole upto 8 mm long. Inflorescence in whorls, distant, axillary, many flowered; bracts minute, villous, Flowers subsessile,

Calyx tube straight, 5-7 mm long, 10 nerved, softly silky, villous outside, pubescent within at throat; teeth 10, minute, filiform, silky, alternately shorter. Corolla bilabiate, white, exerted, tube annulate within; upper lip concave, covered with white stiff hairs without; lower lip 3 lobed, middle lobe larger, emarginate. Stamens didynamous, anthers connivent, divaricate. Disc 4-lobed. Ovary 4 lobed; style gynobasic, bifid, upper lobe minute. Nutlets 4, 1.5-2 mm long, obovoid, triquetrous, grey, rugose, dull, glabrous.

Holotype *Subbarao et Kumari* 29743 A (deposited at CNH., CAL) and isotypes *Subbarao et Kumari* 29743 B to N (Regional Herbarium MH) were collected on Jan. 4th, 1968 at Cherukonda (alt. 900 m) in Visakhapatnam Dt. of Andhra Pradesh. Paratypes *Subbarao et Kumari* 29633A-F (Reg. Herbarium MH) were collected on Dec. 24th, 1967 on way from Minumuluru to Kappakonda (at an alt. of 1000 m) in Visakhapatnam Dt. of Andhra Pradesh.

This variety is named in honour of late Dr. K. M. Sebastine, Regional Botanist, Southern Circle, Botanical Survey of India, Coimbatore.