J. Indian bot. Soc. **64** : 80—84, 1985.

ATYLOSIA CAJANIFOLIA HAINES—A VALUABLE GERMPLASM MATERIAL AND ITS DISTRIBUTION IN THE ANDHRA PRADESH[1]

S. SUDHAKAR, S. HARASREERAMULU, P. SEETHARAMAM AND K. PRAKASA RAO

Floristics and Biosystematics Laboratory, Department of Botany, Andhra Univresity, Waltair, Visakhapatnam

ABSTRACT

Atylosia cajanifolia Haines a valuable germplasm material and very closely allied to *Cajanus cajan* (Linn.) Millsp. has been recently collected for the first time from Srikakulam and East Godavari districts of Andhra Pradesh and also noted from the intervening zone of Visakhapatnam district based on ealier (1947) collection. Such records extend the distribution of the species from Orissa along the Eastern ghats. The species grows in wild condition along moist stream banks both on lower and upper hill slopes at an altitude of 400-1200 m. The species with its robust habit of 4 m. height and more than 10 cm stem girth needs careful protection as endangered species. Emended description notes on habitat and the possibilty of its growth in the hilly ranges north of Bailadila and Kalahandi are added.

INTRODUCTION

Atylosia cajanifolia Haines has so far been collected from the 'Mals' (hilly forests) of Puri and Bhawanipatna (Kalahandi) districts of Orissa (Haines in 1915 ; Mooney, 1941) and subsequently from Bailadila hills, Baster district, Madhya Pradesh (Mooney, 1942 ; 1950). The species is now considered to be a valuable garmplasm as the putative progenitor of *Cajanus cajun* (Linn) Millsp. and thus the importance of locating wild material of *Atylosia cajanifolia* has been considerably realised. Further the complete change of environment along the Bailadila hill ranges due to iron ore extraction and the heavy denudation of Orissa forest areas, locating the species in these original areas has of late, being found to be extremely difficult. With such experience, field parties of International Crop Research Institute for Semi-arid Tropics, Hyderabad (ICRISAT), have also been trying to locate the species along the other parts of the Eastern Ghats, South of Bailadila range. At this stage, the authors during their 'District Flora' studies along the Eastern Ghats of Andhra Pradesh from Srikakulam to West Godavari districts made special attempts to locate the species, presuming its possible growth along the moist hill slopes in lower altitude and hill tops beyond 1000 m altitude. Such effort has resulted in locating the species for the first time in Srikakulam (Lower

1. Accepted for publication on May 25, 1984.

The authors are grateful to Prof. Rolla S. Rao, Principal Investigator, D. S. T. District Flora Project, Department of Botany, Andhra University, Waltair for his kind guidance, helpful suggestions and correction of the manuscript. The first two authors acknowledge with thanks to the University Grants Commission and third one to the Department of Science & Technology for fellowships.

altitude) and East Godavari (higher altitude) districts and by careful re-examination of earlier collections from Gudem Valley, Visakhapatnam district (near Saparlu by Rolla S. Rao in 1947 along with Narayanaswamy and Party), another new area for the species is also added. Such field study has provided a very clear idea of the typical habitat of such valuable germplasm material. As such, ICRISAT field party* accompanying our field party, made fresh collections from the East Godavari district. With profuse collections now made by us, a detailed description much improved after Haines together with map, figures and notes on very robust habit, habitat and distribution, is given to provide enough data for others to locate the species in the various ranges of the Eastern Ghats and the adjoining hills.

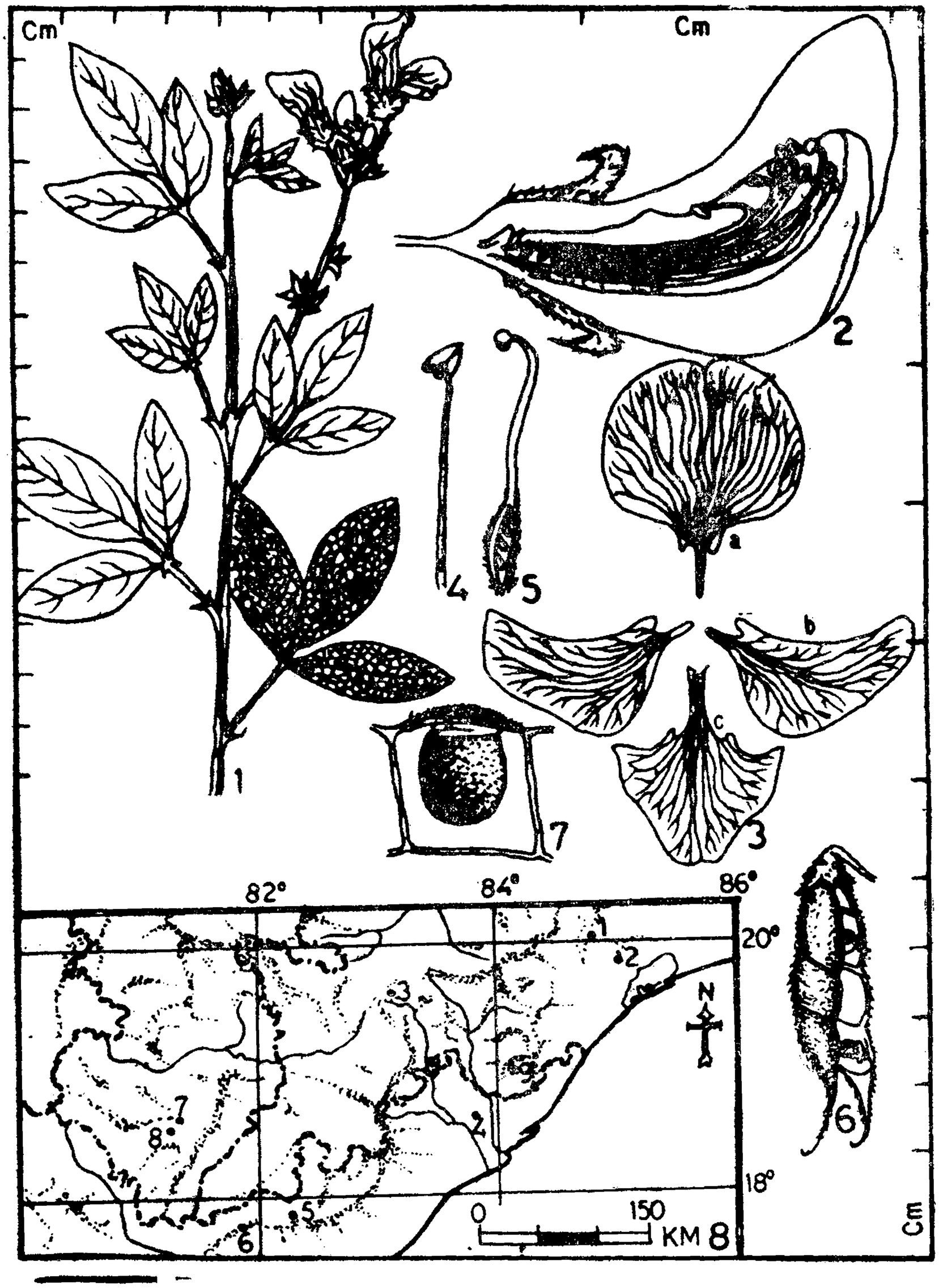
OBSERVATIONS

Atylosia cajanifolia Haines in J. As. Soc. Beng. 15 : 312. 1919 ; Bot Bihar and Orissa (1921), Reprint 2 : 286. 1961. *Cantharospermum cajanifolium* (Haines) Raizada ex Mooney Supp. Bot. Bihar and Orissa 53, 1950.

A large erect shurb, 2-4 m high, stem stout, 8-10 cm diam; branches 2-5 cm thick, spreading, cylindric, hard ; young branches pubescent, angled by 3 to many decurrent lines from the nodes. *Leaves* trifoliolate, stipulate 0.3-0.6 ×0.2-.0.4 cm ovate-lanceolate with clawed base and acuminate apex, stipels winged along the petiole, 0.2 cm long, apex divergent on both sides, petiole 1.5-2.5 cm long, channeled, petiolules sub-sessil,e 0.1-0.3 cm ; leaflets oblong-lanceolate, acute, entire, margins thickened, pale green above and silky beneath, terminal leaflet 2.5-4.5 ×1.3-1.7 cm, two laterals smaller 1.8-3.3 ×0.8-1.1 cm, secondary nerves thick and distinct, 4-6 paris, tertiary reticulate with the silky appressed short hairs, nerves on upper surface not distinct. *Inflorescence* axillary, racemose; flowers upto 1.5 cm long, peduncles 4.5-5.5 cm., longer than leaflets, bracteate 2.3 cm., pedicel 0.5-1.4 cm long, pubescent. *Sepals* 5, 2 connate and 3 triangular, gamosepalous 0.4-0.7 cm long valvate, green pubescent. *Petals* 5, polypetalous, papilionaceous. *Standard* 1.6 ×1.5cm emarginate, apex retuse, streaks 10-12 distinct, red, further dividing reticulately. *Wings*. 1.6 ×0.7 cm, 2-clawed with 5-6 main nerves, further reticulation towards margins. *keel* petals connate along their adjoining margins and enveloping the stamens and pistil, 1.6 ×0.7 cm long, main nerves 6-7, closely reticlute. *Androecium* 10, diadelphous 9+1, 1.8-1.2 cm long, anther 0.2 cm long, dorsifixed, dithecous, introrse. *Gynoecium* monocarpellary, unilocular with the marginal placentation. *Style* 0.8-1.1 cm long, end curved up, pubescent and hairy just above the ovary, *Stigma* capitate, green. *Fruit* a legume 1.5-5.5 cm long, velvety, 2-5 jointed, constrictions oblique, purple-bloched along the margins, beak upto 1.5 cm long elongated, slender with curve-up. *Seed* 5-6 ×2-3 mm, dark grey, with large greyish-yellow persistent strophiole.

From the plants studied in the field particularly Dummakonda top it is evident that the species grows with robust habit sometimes reaching to a height of 4 meters and with a stem of more than 10 cm diam., growing as a perennial along moist stream banks associated with the species of *Euonymus*, *Linociera*, *Melastoma*, *Flemingia* and ferns and grasses, on the hill tops and slopes normally at an altitude of 800-1200 m., resembling very close to *Cajanus cajan* (Linn) Millsp. But interestingly enough, collections from Arang (Puri

*P. Remanandan (1980) & A. N. Murthi (1980)— ICRISAT cylostyled reports.



Figures 1-8 *Atylosia cajanifolia* Haines

1. Twig. 2. L. S. of the flower showing diadelphous condition. 3. Corolla-a. Standard, b. Wings, c. Keel. 4. Stamen. 5. Gynoecium with L. S. of ovary. 6. Pod split open showing seeds. 7. Seed with strophiole. 8. Map showing the distribution of the species along 1-9 localities : 1. Mals, 2. Arang Reserve Forest, 3. Rastuguda Valley, 4. Haripuram, 5. Gudem Valley, near Saparlu, 6. Dummakonda, 7. Way to Bailadila, 8. Malinger Valley, 9. Mahendragiri hill top.

district) and Palakonda (Srikakulam district) Reserved forests indicate the possibility of its growth even at such low altitudes like 100-400 m. also along suiable habitats.

Based on the collections cited below, it is evident that the species grows restricted only to the hilly area of lower and higher altitudes along the Eastern Ghat ranges of Orissa extending southwards into Andhra Pradesh (based on the present new records). Its collection from Bailadila hilly area north of Andhra Pradesh Eastern Ghats, proivdes fruther hope of locating the species in the surrounding hills of Madhya Pradesh and also along the hilly regions of Orissa north of Kalahandi beyond 20° latitude (Map in Fig. 1). With the present understanding of the distribution of the species, though it is collected by us only from one locality in each of the northern districts of Andhra Pradesh, it is quite possible to locate it on other hill-tops and slopes presenting suitable habitat for the species.

The species, with its restricted distribution, (the only localities so far known as given below), poor regeneration and possible destruction due to denudation of forest areas in the Eastern Ghats and due to mining operations along Bailadila hills, needs suitable protection as endangered species and proper maintenance as valuable germplasm material.

Specimens examined : (Localities so far known for the species). The number against each locality refers to the number on the map in Fig. I).

ORISSA	*Puri district*	.. Mals of Orissa[1], *Haines* 3867, in Nov. 1915 (This was indicated as the very feverish tract in the south of Orissa bordering on the Madras Presidency—Haines, Botany of Bihar & Orissa, 1925. rep. ed. 47. Such indication represents hilly forest areas in the present Puri district) (CAL) ; Arang Reserved Forest[2] (100 m alt.), 3-4 km from RH to Aitpur checkpost, Remanandan 4876, in March 1980 (ICRISAT) Herb.)
	Ganjam district	.. Mahendragiri hill top[9] (1501 m.) *Prakasa Rao s.n.* on 29-2-1964.
	Bhawanipatna district	.. Rastuguda valley[3] (alt. ±1100 m.) ; Kashipur, Kalahandi, *Mooney* (CAL, DD).
ANDHRA PRADESH (All new records)	*Srikakulam district*	.. Palakonda Reserved Forest, on the way to Lokothavalasa, near Haripuram[4] (alt. ± 400 m), Palakonda Range, *Harasreeramulu* 9134, on 9-3-81 ; *Seetaraman* 234, on 9-3-1981 (fruiting) (Andhra Univ. Bot. Dept. Herb.).
	Visakhapatnam district	.. Gudem valley, near Saparlu[5] (alt ± 1000 m.) *Narayanaswami & Party* 492, on 15-2-1947 (wrongly identified as *Cajanus cajan*, Rolla S. Rao in *Bomb. Nat. His. Soc.* 61 : 308, 1964) (CAL.).

	East Godavari district	.. Dummakonda top[6] (alt ± 1050 m.), N. E. of Dharawada, Addatigala Range, *Sudhakar* 10151, on 17-9-1980 (veg.), *Sudhakar* 12160, on 10-3-1981 (fl. & frt.) (Andhra Univ. Bot. Dept. Herb.), *Kameswara Rao* 193, on 10-3-1981 (fl & frt.) (ICRISAT Herb.).
MADHYA PRADESH	*Bastar district*	.. Way to Bailadila[7] (alt. ± 1200 m.), *Balakrishnan* and *Henry* 12128 (CAL), Bailadila, *Panigrahi* 6853, on 13-2-1968 (CAL) Old IBM Camp. Malinger valley[8], Bailadila hills, *Remanandan* 4868, in March (1980) (ICRISAT Herb.),

REFERENCES

HAINES, H. H. 1919. Some new species of plants from Bihar and Orissa. *J. Asiat. Soc. Beng.* **15:** 312.

HAINES, H. H. 1922. *The Botany of Bihar and Orissa* Reprint B. S. I., 1961.

MOONEY, H. 1950. Supplement to the *Botany of Bihar and Orissa*. Catholic Press, Ranchi.

SESHAGIRI RAO, R. 1964. Observations on the vegetation of the Rampa and Gudem Agency tracts of the Eastern Ghats II. *J. Bombay nat. Hist. Soc.* **61 :** 303-329.

VAN DER MAESEN, L. J. G. 1979. India is the native home of the Pigeon pea. *J. ICRISAT*, **89 :** 257-262.