

to ovate-lanceolate, entire, subacute at apex, narrowed at base, midrib reaching $3/4$ the length of lamina. *Flower-bearing leafy shoots* often branched below; the upper few linear leaves more or less connate below forming a sheath, enclosing the basal part of pedicel. *Flowers* solitary, terminal, regular, bisexual, hypogynous, monochlamydeous; pedicels ± 2 mm long, lengthening to ± 1 cm in fruit, pale red. *Perianth* segments 3, persistent, each $\pm 2.5 \times 1.5$ mm, pale green, oblong-obovate, obtuse, concave. *Stamens* 3, alternating with perianth segments; filaments ± 1 mm long, pale red, slender; anthers $\pm 1.5 \times 1$ mm, greenish, ovate-oblong, basifixed, introrse; pollen spheroidal, diameter $17.25-24.51 \mu$, panporate, pores less than 12, ornamentation obscure (L.O.). *Ovary* red, sessile, ellipsoid, smooth, 3-loculed; placentation axile, thick; ovules many; stigmas 3, deep red, sessile, short, fleshy, papillose. *Capsules* 2-3 mm long, ellipsoid, 9-ribbed, dehiscent into 3 valves. *Seeds* $\pm 0.5 \times 0.2$ mm, broadly ellipsoid in outline, smooth (Text, figs. 1-17; Plate I, figs. 1-3).

The holotype of this species (Karthikeyan 40159A) and isotypes (Karthikeyan 40159B-S) were collected from Thulukkanparai, Tirukkurungudi, Tirunelveli district, Tamil Nadu (formerly Madras) India at an altitude of about 850 m on 17-2-1972; the holotype is deposited in the Central National Herbarium, Calcutta (CAL) and the isotypes in Madras Herbarium, Botanical Survey of India,

Coimbatore (MH). The paratype (Sharma 42112) collected from the same locality on 30-9-1972 is also deposited in MH.

Dr. K. Subramanyam, Ex-Director, Botanical Survey of India, Calcutta who examined the materials of this species comments (personal communication): "the vegetative structure of the specimen is quite distinctive from that of the two described species of *Indotristicha* viz., *I. ramosissima* (Wt.) van Royen and the recently erected *I. malayana* Dransfield & Whitmore. I feel Karthikeyan 40159 comes close to *I. malayana*".

ACKNOWLEDGEMENTS

The authors are grateful to Dr. K. Subramanyam, Ex-Director, Botanical Survey of India, for giving his valuable opinion on this species, to the authorities of the Forest Department, Tamil Nadu for their co-operation during the botanical exploration of the area and to Rev. Father K. M. Matthew, S.J., Rapinat Herbarium, St. Joseph's College, Tiruchirapalli, Tamil Nadu and Rev. Fr. C. E. George, St. Joseph's Seminary, Allahabad for translating the description into Latin.

B. D. SHARMA

Royal Botanic Gardens, Kew, U.K.

S. KARTHIKEYAN

Botanical Survey of India, Poona

AND

B. V. SHETTY

Botanical Survey of India, Jodhpur

NOTES ON THE DISTRIBUTION OF SOME FLOWERING PLANTS FROM AURANGABAD (MAHARASHTRA)

Aurangabad district forming a part of the vast Deccan plateau, has been poorly known botanically in the past. In spite of a few scattered publications on the plant distribution from the area (Bradely, 1884; Patridge,

1911; Sharfuddin Khan, 1953; Tilak, 1963), much remains to be done in this area. Recent investigations on the flora of the district have continued to yield a good number of plants not recorded by any of the above in-

vestigators (Naik, 1970 a, b, 1971, 1973; Hippalgaonkar, 1972). The present note deals with the information on the distribution of two such species, namely, *Nicotiana repanda* Willd. ex Lehm. and *Bergia aestivosa* Wt. & Arn. Following is the enumeration of these two species together with the relevant data on their distribution. All specimens cited below have been deposited in the Herbarium of Marathwada University, Aurangabad.

Nicotiana repanda Willd. ex Lehm. Nicot. 40, t. 3. 1818. (Fig. 1).

Annual erect herb, glandular hairy. Leaves radical, sessile, 24-60 × 10-25 cm, cauline smaller, margin repand. Flowers dull-pinkish-white, hairy without. Corolla 5-lobed; tube narrow, \pm 5.2 cm long; limb spreading, 7.5 mm long. Stamens included. Style 2.5-3 cm long; stigma capitate. Capsules 0.8-1 × 0.4-0.5 cm, ovate, acute at apex, valves bifid at apex. Seeds brown.

Field notes: Rare on bunds of fields.

Fls. and frts.: July to February.

A native of Mexico, so far occurring in natural state from South United States only, has been recently collected from the outskirts of Aurangabad city. Since the time and source of its introduction in India is not known, this turns out to be a new record for the country.

Aurangabad, *Pardeshi & Pokle* 810.

Bergia aestivosa Wt. & Arn. Prodr. 41. 1834; Dyer in Hook. f. Fl. Brit. Ind. 1: 251. 1874.

Undershrub, root-stock woody; spreading procumbent branches 90 cm long. Leaves ovate-oblong or elliptic, 10-15 × 3.5 mm, distantly serrate; stipules subulate, 1-1.5 mm long, herbaceous, margin denticulate. Flowers pinkish-white in axillary cymes.

Bracts lanceate \pm 2.5 mm long; bracteoles similar and shorter. Sepals distinct with serrate margins, \pm 3 mm long. Petals obo-



Fig. 1: *Nicotiana repanda* Willd. ex Lehm.
A. Habit. B. A flower (opened). C. Capsule.

vate, 4 × 2 mm, obtuse or subacute. Stamens as many as, twice or thrice the number of petals, staminodes absent. Style \pm 1 mm long; stigma minute, globose. Capsules 3-5-valved.

Field notes: Rare along the banks of river Godavari.

Fls. and frts.: March to May.

Shahgarh, *Pardeshi & Pokle* 394.

ACKNOWLEDGEMENTS

Our thanks are due to Dr. J. F. Veldkamp of Netherlands and Dr. O. Rohweder of Zurich for identification/confirmation of above plants. We are also thankful to Principals of our institutions for facilities and to Dr. V. N. Naik of Marathwada University, Aurangabad, for help in compilation of the data.

V. N. PARDESHI

S. B. E. S. College of Science, Aurangabad

AND

D. S. POKLE

Deogiri College, Aurangabad

REFERENCES

- BRADLEY, W. H. *Gazetteer of Aurangabad District*. 1884.
- HIPPALGAONKAR, K. V. Some new records of plants in the flora of Aurangabad. *J. Biol. Sci.* 15 : 47. 1972.
- KHAN SHARF-UD-DIN. *Forest Flora of Hyderabad*. Hyderabad, 1953.
- NAIK, V. N. Critical notes on the flora of Aurangabad District.-I. *Marathwada Univ. J. Sci.* 8: 15-19. 1970a; II. *ibid.* 10(3) : 39-44. 1971; III. *ibid.* 12(5) : 11-13. 1973.
- Some new and noteworthy plants from India. *Proc. Indian Acad. Sci.* 71(6) : 226-229. 1970b.
- PATRIDGE, E. A. *Forest Flora of H. E. H. the Nizam's Dominions, Hyderabad, Deccan*. Hyderabad, 1911.
- TILAK, S. T. *Flora of Aurangabad. Marathwada Univ. Bot. Mem. no. 1*. Aurangabad, 1963.

HEDYCHIUM RADIATUM & H. ROBUSTUM (ZINGIBERACEAE)—TWO NEW SPECIES FROM KAMENG DISTRICT, ARUNACHAL PRADESH

A critical study of some of the *Hedychium* plants, originally from Kameng district, Arunachal Pradesh, and cultivated in the 'Woodlands' Experimental Garden, Shillong, two of which bloomed for the first time, after due acclimatisation, proved to be new species. These are described and illustrated.

Hedychium radiatum A. S. Rao et P. K. Hajra, spec. nov. Affine *Hedychio elliptico* Buch.-Ham. ex J. E. Smith, a quo differt foliis adpresse pilosis, secus costas; bracteis rubello brunneis ad marginem labello latiore, staminibus uniformiter rubris.

Allied to *H. ellipticum* Buch.-Ham. ex J. E. Sm. but differs in its leaves being appressed hairy along the midrib, bracts and calyx pubescent at base; bracts reddish-brown at margin; labellum broader; stamens uniformly red.

Rhizome creeping, knotted and shortly branched, ca 2 cm across, brown outside, light creamy inside; roots 20.0-30.0 cm long, rope like, 2-3 mm across. **Stem** 0.8-1.0 m high, green with reddish-brown tinge.

Leaves 18.0-34.0 cm long, 6.0-14.0 cm broad, ovate or ovate-lanceolate, acuminate; upper surface glabrous; midrib beneath hairy; ligule 1.0-1.5 cm long, green with reddish-brown tinge, glabrous. **Spike** 8.5-11.0 cm long, cone-like, green with reddish-brown tinge, 11.5-15.0 cm across in flowers; bracts 2.0-3.5 × 1.0-3.0 cm, broadly elliptic to obovate, flatly imbricating, 2-3 mm along the margin reddish-brown, otherwise green, hairy at base, 1-flowered; bracteoles tubular, pinkish-green, obliquely convolute, 1.3-1.7 cm long. **Flowers** 11.0-11.2 cm long, 43-45 per inflorescence, white turning creamy in age, sweet-scented; **calyx** tubular, pinkish-yellow, 2.8-3.0 cm long, split on the side obliquely, almost equalling the bract, densely hairy at base; **corolla-tube** 5.0-5.5 cm long, pinkish; lobes linear, subequal, 3.5-4.5 cm long, 0.2-0.3 cm broad, greenish-yellow to yellow or creamy, inrolled; lateral staminodes spatulate, 3.0-3.2 cm long, 0.5-0.7 cm broad; **lip** 2.6-3.2 cm long, 1.0-1.3 cm broad, unguiculate, bilobed; sinus 0.3-0.5 cm deep; **stamen** stretched out, red; filament 4.0-5.5 cm long, exceeding the lip by 1.5-2.0 cm;