

ing to note that GA treatment 24 hours after pollination showed remarkable increase in the weight of the individual seeds. For instance, 100 ppm applied 24 hours after pollination showed 130.4 per cent increase in individual seed weight over control. Good seeds were, however, obtained with 10 ppm applied 24 hours after pollination. Harrington (1960) also observed increase in yield of lettuce seeds by using 3-10 ppm of GA and Nitsch (1961) has discussed the role of GA in inducing fruit set in different kinds of plants. Earlier, Chandler (1957) stressed the role of GA in fruit set and seed production and Wittwer and Bukovac (1958) mentioned the effectiveness of GA in inducing fruit set and fruit development. Recently, Chakrabarty (1965) got encouraging results in Pansy as regards fruit set and seed production after application of GA and other growth substances.

This preliminary investigation suggests interesting possibilities of improving seed production in Pansy through selective crossing and by the application of GA.

SUMMARY

This investigation was undertaken to try to increase seed production in Pansy by breeding and by the application of GA which was used in three concentrations (1, 10 and 100 ppm) each applied 0, 4, 8 and 24 hours after pollination.

Ten ppm GA applied immediately after pollination resulted in early maturity of fruits whereas all the other treatments gave late maturity. Percentage of seed set increased by 1 ppm GA applied 24 hours after pollination. Increase in fruit size was found

when 100 ppm GA was applied 24 hours after pollination. Application of 10 and 100 ppm GA 24 hours after pollination showed 186.6 per cent and 200.8 per cent increase in seed weight respectively over control. All the other treatments showed increase in individual seed weight. 10 ppm GA sprayed 24 hours after pollination produced large number of good seeds.

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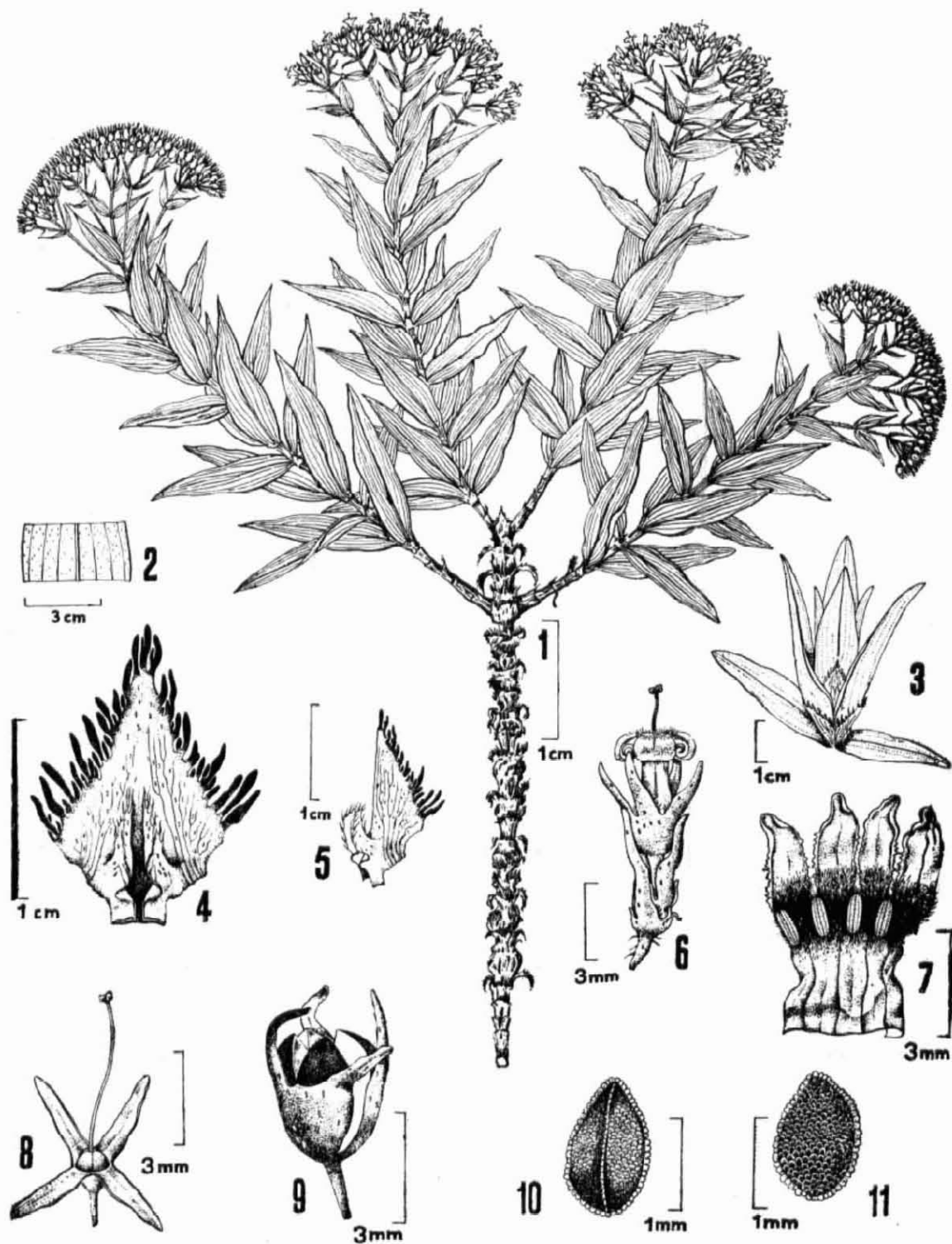
NEW AND LITTLE KNOWN TAXA FROM ANAIMUDI AND SURROUNDING REGIONS, DEVICOLAM, KERALA-II: A NEW SPECIES OF *HEDYOTIS* LINN.

Hedyotis santapau Shetty et Vivek., spec. nov.

Affinis *Hedyotidi articulati* R. Br. ex G. Don, a qua tamen differt foliis maioribus; stipulis elliptico-ovatis vel elliptico lanceo-latis, ad apicem angustatis, pectinatis, dentibus longis et brevibus, glandularibus, appendice duplici cristae simili basali ornatis; calycis dentibus longioribus, lineari-lanceolatis; fructibus apice elevato et protruso inter calycis dentes.

Subfrutices, ca. 1.5 m alti; rami quadrangulares glabri, cicatricibus petiolorum et stipularum eminentibus; spatia internodalia 3-8.5 mm longa. Folia 2.1-7 × 0.5-1.95 cm, simplicia, opposita, ad apices ramorum conferta, lanceolata, ad basin rotundata,

ad apicem acuta, marginibus paulum recurvis, lutea cum sicca; raphides in pagina inferiore adsunt, sparsae, adscendentes; nervi laterales 4-9-jugi, versus apicem arcuati. Stipulae 0.8-1.75 cm longae, ad basin connatae, elliptico-ovatae vel elliptico-lanceolatae, carinatae, ad apicem angustatae, pectinatae dentibus longis et brevibus glandularibus, stipulae basi appendice duplici ornata extus; appendices cristae similes, decurrentes ut alae angustae in internodos; raphides adsunt in stipulis et appendicibus, sparsae, adscendentes. Cymae in paniculas terminales dispositae, confertae; pedunculis quadrangularibus, puberulis. Bractae 0.8-3.6 × 0.5-1.1 cm.



Hedysotis santiapau Shetty & Vivek., spec. nov.

Figs. 1-11: 1. Branch showing flowers and capsules. 2. Lower surface of a portion of leaf showing raphides. 3. Terminal portion of a vegetative shoot showing stipules connate at base. 4. Dorsal view of stipules. 5. Side view of stipule showing stipular appendages. 6. Flower. 7. Corolla split open. 8. Calyx with gynoecium. 9. Capsule showing dehiscence. 10 & 11. Two views of seed.

foliaceae, lanceolatae; raphidibus ornatae in pagina inferiori, sparsis, adscendentibus; bracteolae 2.5-6 mm longae, lineares, raphidibus sparsissimis. Flores ± 7 mm longi, pedicellati. Calycis laciniae 4, ± 3 mm longae, linearilanceolatae, raphidibus sparsissimis. Corolla purpurea, tubo ± 3 mm longo, fauce et basi laciniarum corollae barbatis; laciniae ± 3.5 mm longae, recurvae, marginibus denticulatis. Stamina 4, corollae tubo inserta ad faucem; antherae ± 1 mm longae, filamentis fere nullis. Ovarium glabrum; stylo ± 5.5 mm longo, purpureo; stigmatibus parvis, bilobis, albis. Capsula 3-3.5 mm longa, subglobosa, glabra, apice elevato et protruso inter calycis dentes, septicide scissa in duplicem pluriseminatum coccum, dehiscentem ventraliter, calycis dentibus haud accrescentibus. Semina plura, nigra, 1-1.5 mm longa, longiora quam lata, 3-angularia, saepe uno paulo maiore ceteris duobus, alveolata.

Typus, *Shetty* and *Vivekananthan* 26471 A et isotypus *Shetty* and *Vivekananthan* 26471 B-G lecti ad Umaiymalai, Devicolum, Kottayam dist., in Statu Kerala in India meridionali die 17 novembris 1965 et positi, typus in CAL, isotypi in herbario MH ad Coimbatore. Paratypus, *R. H. Beddome* 3697, lectus ad Anamallays, ad altit. 1830 m positus in Museo Britannico, Londini (BM).

Hedyotis santapau Shetty & Vivek., spec. nov.

Allied to *Hedyotis articularis* R. Br. ex G. Don, but differs in having larger leaves; stipules elliptic-ovate to elliptic-lanceolate, narrowed at tip, pectinate with long and short glandular teeth, provided with two crest-like basal appendages; calyx teeth longer, linear-lanceolate and fruits with top raised and protruded between the calyx teeth.

Undershrubs about 1.5 m tall; branches 4-angled, glabrous, cicatrices of the petioles and stipules prominent; internodes very short, 3-8.5 mm. Leaves 2.1-7 \times 0.5-1.95 cm, simple, opposite, crowded at the ends of branches, lanceolate, rounded at base, acute at tip, margins slightly recurved, drying yellow; raphides present on the lower surface, sparse, ascending; lateral nerves 4-9 pairs, arching towards the apex. Stipules 0.8-1.75 cm long, opposite ones connate at the base, elliptic-ovate to elliptic-lanceolate, keeled, narrowed at tip, pectinate with long and short glandular teeth, base of stipule provided with two appendages on the outer side; appendages crest-like, decurrent as narrow wings to the internodes; raphides present on stipules and appendages,

sparse, ascending. Cymes in terminal panicles, crowded; peduncles quadrangular, puberulus. Bracts 0.8-3.6 \times 0.5-1.1 cm, foliaceous, lanceolate; raphides present on the lower surface, sparse, ascending; bracteoles 2.5-6 mm long, linear, raphides very sparse. Flowers ± 7 mm long, pedicellate. Calyx 4-lobed, lobes ± 3 mm long, linear-lanceolate, raphides very sparse. Corolla purple, tube ± 3 mm long, throat and base of corolla lobes barbate; lobes ± 3.5 mm long, recurved, margins denticulate. Stamens 4, inserted in the corolla tube at the throat; anther ± 1 mm long, filament almost 0. Ovary glabrous; style ± 5.5 mm long, purple; stigma small, bilobed, white. Capsules 3-3.5 mm long, sub-globose, glabrous, the top raised and protruded between the calyx teeth, septicidally splitting into two several seeded cocci, cocci dehiscing ventrally, calyx teeth not accrescent. Seeds many, black, 1-1.5 mm long, longer than broad, 3-angled, often one side slightly larger than the other two, alveolate.

The holotype *Shetty* and *Vivekananthan* 26471 A and the isotypes *Shetty* and *Vivekananthan* 26471 B-G were collected from Umaiymalai, Devicolum, Kottayam District, Kerala State, South India on 17-11-1965. The holotype has been deposited in the Central National Herbarium, Calcutta (CAL); the isotypes have been deposited in the Regional Herbarium, Botanical Survey of India, Coimbatore (MH). The paratype, *R. H. Beddome* 3697 collected at Anamallays, at 1830 m is in the British Museum (Natural History), London (BM).

Note: In dried materials the raphide cells are not easily observable.

This species is being named in honour of Dr. H. Santapau, former Director, Botanical Survey of India.

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