THE INFLORESCENCE AND FLOWERS OF
DICHROSTACHYS CINEREA, W & A

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The inflorescences of certain members of the sub-family Mimosoideae bear polygamous flowers. Geitler (1927) has described this phenomenon in Neptunia oleracea. The results of a similar study of Dichrostachys cinerea, another member of the sub-family, are embodied in the present paper. This plant is of frequent occurrence in the dry forests of India and material collected on the Delhi Ridge last September by Prof. P. Maheshwari was very kindly passed on to me for study.

Besides dissections of numerous flowers from several inflorescences, microtome sections of complete young spikes as well as of individual flowers were cut following the customary methods of infiltration and imbedding in paraffin. Some sections were stained with safranin and fast green and others with Heidenhain's iron-alum haematoxylin.

Observations

A portion of a flowering and fruiting twig of the plant is shown in Fig. 1. Exclusive of the stalk, approximately the upper half of the spicate inflorescence bears normal, perfect, bisexual flowers with the floral formula K (5), C (5), A 5, and G 1. The petals are subconnate towards their bases and are bright yellow in colour. The stamens have slender filiform filaments. The five stamens opposite the sepals are longer than those opposite the petals (Fig. 11). The dorsifixed anthers are four-celled, with the connective prolonged into a conspicuous, stipitate gland (Figs. 17, 18, 29). Four archesporial groups are differentiated in each anther (Fig. 30). The pollen grains in each anther locule are aggregated to form 6 or 7 pollinia arranged in a single file (Fig. 17). The ovary is one-celled and densely hairy (Fig. 12). The long style ends in a dilated, cup-like stigma with a marginal rim (Fig. 13). There are several ovules in two rows on a marginal placenta (Fig. 12). The anther filaments and the style are folded in bud but straighten out and become exserted in the open flower (Fig. 7).
Figs. 1-13. Fig. 1. Twig bearing three inflorescences with closed flowers (a), open flowers (b) and fruits (c), × 1. Fig. 2. Part of axis of inflorescence with flowers and bracts removed to show arrangement of scars of perfect flowers (a), flowers of intermediate zone (b), and sterile flowers (c). Fig. 3. Young spike showing compactly arranged flower buds, × 1½. Figs. 4-6. Buds of perfect (fig. 4), intermediate (Fig. 5) and sterile (Fig. 6) flowers, × 5. Figs. 7-9. Open flowers of three types, perfect (Fig. 7), intermediate (Fig. 8) and sterile (Fig. 9) × 5. Fig. 10. An open sterile flower with the tassel of staminodes straightened out, × 5. Fig. 11. Two petals and three stamens of a perfect flower, × 5. Fig. 12. Pistil of a perfect flower; dotted lines indicate position of ovules within, × 22½. Fig. 13. Enlarged stigma, × 70.