Hyderabad (Thummala Kunta): Rajagopal 578 (deposited at the Osmania University, Botany Department, Herbarium = HY).

It is pertinent to remark that the plant was previously collected from about 1200 m. altitude, Annamalai Hills which is about 800 km. away from Hyderabad, a place which is 400 m. above sea-level. From the difference in the distance as well as the altitude of the two places it is obvious that the species may have a wider distribution than presently known. Very probably, the small size and entanglement with other ground elements, particularly the grasses and sedges, were responsible for its non-observance from a wider area.

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DEVELOPMENT OF STOMATA IN PHASEOLUS

From the available literature it is revealed that Metcalfe and Chalk1 are the only persons to describe the occurrence of Rubiaceous type of stomata in Phaseolae. Because the ontogeny of stomata is not mentioned, the present authors made a critical study on the development of stomata in Phaseolus aureus, P. mungo and P. trilobus. Young leaves of all the three species were separately boiled in 2% HNO₃ solution for 2 minutes. When cooled, the epidermal layer from leaves came out as peels. These were washed properly and stained in acetocarmine and mounted in glycerine.

Since the development of stomata in all the 3 species is same, the figures and descriptions are referred to P. aureus only.

The stomatal meristems are easily distinguishable from other cells due to their small size, almost triangle-shaped and densely filled cytoplasm. This meristemoid cell divides longitudinally by means of a curved wall delimiting a comparatively large cell and a small lenticular cell (Fig. 2) which again divides into two equal halves due to formation of a curved wall almost parallel to the previous one (Fig. 3). Thus a tier of 3 cells is produced, one central and two-flanked cells that elongate parallel to the longitudinal axis of the central cell and function as subsidiary cells. The central cell after slight elongation undergoes a longitudinal division producing two guard cells of similar size (Fig. 4). The development of stomata thus conforms to the Rubiaceous (or Paracytic) type and because the subsidiary cells and guard cells are produced from the same meristemoid, the development of such paracytic stomata conforms to the mesogenous type of Pant.2 The

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Figs 1–4. Development of stomata, × 752 (gm = guard mother cell; S₁ & S₂, subsidiary cells; sm, stomatal meristemoid). Fig. 1. A stomatal meristemoid. Fig. 2. One of the subsidiary cells (S₁) being cut off. Fig. 3. Subsidiary cells (S₁, S₂) and the central guard mother cell (gm). Fig. 4. Fully developed stomata.

present observation therefore conforms totally to that of Metcalfe and Chalk in describing the stomata type in Phaseolus. It is interesting to find that in many stomata the epidermal cells of the leaves assume the shape of the subsidiary cells, lying juxtaposed with the latter. They are distinguished from the actual subsidiary cells by means of their large size.

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