

material of the cell wall is degraded by pectic enzymes. This is necessary for the spread of the pathogen in host tissue. Soft rot symptoms like maceration of tissue, water oozing and concavity in the infected area are the results of the action of enzymes on host tissue. These enzymes thus work for the initial parasitic stage of the pathogen, and subsequently for the saprophytic stage that follows, by making the degraded material available to the pathogen.

Post-Graduate Dept. of Botany, P. K. RAI.  
M.V.M., Bhopal,  
August 9, 1976.

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#### VARIABILITY IN *XANTHOMONAS VESICATORIA* (DOIDGE) DOWSON FROM TOMATO, CHILLI AND DATURA

PATHOGENIC variability in *Xanthomonas vesicatoria* was reported early in 1941 by Burkholder and Li<sup>1</sup>. Since then many workers have attempted to study the variability in this bacterium with varying results; (Dye *et al.*<sup>3</sup>, 1964; Cook and Stall<sup>2</sup>, 1969). Studies were conducted with eight isolates, three from tomato, four from chilli and one from datura. Morphologically all the isolates from tomato and chilli were alike in characters such as motility gram-reaction and flagellation. They behaved alike in most of the biochemical and physiological properties such as hydrolysis of starch, sodium hippurate, etc. In the utilisation of carbon compounds (sugars) and production of acid, the chilli isolates, gave delayed and mild acid reaction in cellobiose galactose dextrin and melibiose, whereas lactose and mannitol were utilised only by the tomato isolates. In disc-gel electrophoretic comparison of the soluble protein patterns, 12 bands were common in all, tomato and chilli isolates exhibited identical patterns, having 16 bands compared to 22 in datura.

Bacteriophages, isolated from chilli and datura were very specific to their homologous bacterial isolates. The chilli phage did not attack 20 other xanthomonads and 2 pseudomonads tested but the datura phage typed *X. sesami* and *X. corcori*. In pathogenicity trials and cross inoculation experiments, it has been observed that the tomato isolate is not virulent on chilli, the chilli isolate readily infects both chilli and tomato, the tomato and chilli isolates could infect datura while the datura isolate could not infect chilli or tomato.

Based on the evidence obtained in the studies on physiological characters, protein, bacteriophage sensitivity and pathogenicity of tomato, chilli and datura isolates of *X. vesicatoria*, it is considered that they represent three different strains of the pathogen and that the tomato and datura strains might have evolved from the chilli strain. Further, the original host of the pathogen might have been chilli as evident by its ability to infect both tomato and datura. Moreover, the disease was recorded for the first time on chilli (Gardener and Kendrick<sup>4</sup>, 1921). The tomato isolate was less specialised in that it could infect datura whereas the datura isolate was more specialised and could not infect tomato or chilli.

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College of Agriculture, JAMES MATHEW.  
Vellayani, Kerala State, P. N. PATEL.  
September 3, 1976.

\* James Mathew, Assistant Professor, Division of Plant Pathology, College of Agriculture, Vellayani, Kerala State.

P. N. Patel, Indian Agricultural Research Institute, New Delhi-12.

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#### A NOTE ON MONADELPHY IN SOME LAMIACEAE (LABIATAE)

EPIPETALOUS free stamens are reported in all the genera of Lamiaceae by Hooker (1885), Mukherjee (1940), Rendle (1959), Hutchinson (1959), Lawrence (1965) and Mitra (1965) except in *Coleus* where they are epipetalous and monadelphous. During a comparative floral anatomical studies on some taxa of Indian Lamiaceae, the author observed some interesting morphological features of the androecium which are recorded here.

It is observed in the present investigation that in *Anisochilus polystachyus* (Figs. 16-18) and *A. carnosus* (Figs. 13-15) the filaments of the stamens fuse at their base to form an incomplete tube. It extends to a height of 100-150  $\mu$  after the stamens get separated from the corolla tube. A similar condition has also been noticed in *Geniosporum prostratum* (Figs. 10-12) but the tube is

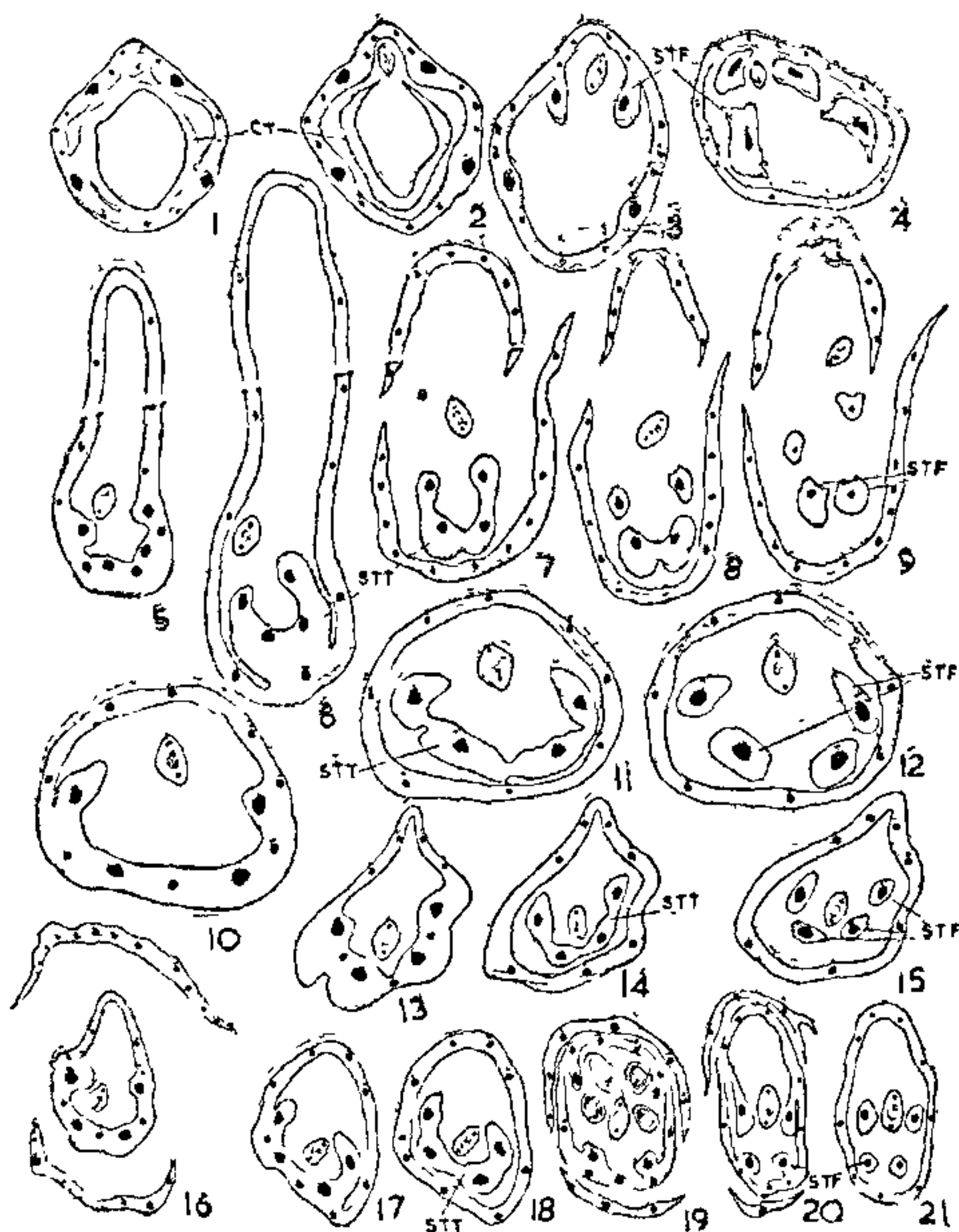
comparatively shorter (50–100  $\mu$ ) than the two species of *Anisochilus* investigated. However, in another species of *Geniosporum* (*G. indicum*) the staminal filaments are quite free from the point of their origin (Figs. 19–21). Of the two species of *Coleus*, namely, *C. blumi* and *C. scutellarioides*, only the former shows monadelphous condition (Figs. 5–9) while the latter manifests a nonvascular tubular outgrowth developing in between corolla and androecium and the staminal filaments are free as in *Geniosporum indicum*. The coronary tube recorded in *C. scutellarioides* extends upwards and terminates below the place of emergence of stamens (Figs. 1–4). Thus from the present study, it is obvious that the union

Rendle (1959). In view of this observation it may now be considered that, this feature, may furnish additional support to the view that the family is more evolved among the Tubiflorae.

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Department of Botany; D. SANTHA KUMARI.  
Andhra University

Post-Graduate Centre,  
Guntur 522 005,  
March 18, 1976.



FIGS. 1–21. Serial transverse sections of flower buds of *Coleus*, *Geniosporum*, and *Anisochilus*. Figs. 1–4. *Coleus scutellarioides*  $\times 20$ ; Figs. 5–9. *Coleus blumii*  $\times 20$ ; Figs. 10–12. *Geniosporum prostratum*  $\times 40$ ; Figs. 13–15. *Anisochilus carnosus*  $\times 35$ ; Figs. 16–18. *A. Polystachyus*  $\times 35$ ; Figs. 19–21. *Geniosporum indicum* 19  $\times 32$ ,  $\times 25$  (CT—Coronary tube; STF—Staminal filaments, STT—Staminal tube).

of the staminal filaments (monadelphous) is not confined to *Coleus* alone, but it also occurs in two more genera, namely, *Anisochilus* and *Geniosporum* though there is a marked variation in the extent of its development in the latter representatives. Monadelphous androecium, which represents a highly evolved condition (Bossey, 1915; Hutchinson, 1959), is not known in other families of Tubiflorae of

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**SOLHEIMIA KAMATI SP. NOV. (HYPHOMYCETE)  
A NEW GENERIC RECORD TO INDIA**

RECENTLY, the senior author (KIM) collected a hyphomycetous fungus on the dead leaves of *Pandanus* sp. at Wynaad, N. Kerala, which agreed in all respects with a species of the form genus, *Solheimia* Morris. This form genus was established by Morris (1967)<sup>1</sup> for a monotypic phragmosporous, phaeostilbaceous member of Moniliales, with *S. costaspora* Morris as type, originally described from Panama Canal.

On critical study and comparison the collection proved to be significantly distinct from the type species, viz., *Solheimia costaspora* Morris in possessing much longer and double dichotomously branched conidiophores with smaller conidia. The present collection has therefore been identified as a new species, *Solheimia kamatii* sp. nov. (Fig. 1).

Synnemata erecta, cylindracea, viridascentia vel viridonigra, usque ad 1 mm altitudine, usque ad 25–60  $\mu$  latitudine; conidiophora cylindrica, erecta, pallidae vel fusco-virides, verrucosae, 2–2.5  $\mu$  latitudine, aggregata, non-ramosa ad basin, ramosa et hyalina ad apicem; conidia acrogenis, solitaria, aseptata, cum 6–8 costis longitudinalibus, fusiformata, olivacea vel fuscoviridia, magnit 10–12  $\times$  2.5–3.5  $\mu$ , mucosa.