

Observations on *Ceratocystis adiposa* and the conidial ontogeny of its imperfect stabe

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From tomato fruits showing symptoms of rot, a fungus was isolated and the description is given below.

Colonies fast growing in oat meal and malt extract agar media, brown in the beginning turning black with age. Perithecia superficial on agar media, black, base subglobose $394.8-493.5 \times 211.5-282.0 \mu$, clothed with septate hyphae like hairs, neck long, black, up to 1480.0μ long and 22.4μ wide, ostiolar hyphae present, straight or some times inwardly curved, up to 168.0μ long (Plate 1, E). Asci evanescent. Ascospores unicellular, hyaline, orange section shaped in side view, cylindrical in face view, surrounded by a uniform, hyaline gelatinous sheath, side view dimensions $5.6-7.0 \times 3.5-4.2 \mu$ with sheath (Text Fig. 1, H). Ascospores collect at the tip of the neck in a hyaline droplet (Plate 1, F).

Conidia are produced at the tip of phialides in persistent chains. Phialides are produced anywhere on the vegetative hyphae, cylindrical, tapering towards the apex, one to two septate and measuring up to 36.4μ . Conidial shape varies from spherical to oblong with a thick wall up to 1.4μ , margin verrucose, colour dark brown. Spherical conidia measure $8.4-19.6 \mu$, where as oblong conidia measure $11.2-15.4 \times 9.8-12.6 \mu$. Rarely conidia are rectangular, smooth to slightly verrucose and measure $8.4-12.6 \times 3.5-5.6 \mu$. The first conidium is formed at the slightly bulged tip of the phialide. After maturation this conidium is pushed up by the second conidium initial, there by leaving a collerette at the tip of the phialide. Thus a series of conidia are produced in a basipetal succession. The conidia are held together as a persistent chain with a continuous outer wall layer and narrow isthmi at the point of attachment of two conidia (Text Fig. 1, A—G., Plate 1, A—D).

The fungus grew well on potato dextrose agar, oat meal agar, malt extract agar and carrot agar media, the best mycelial growth being in carrot agar medium covering the entire Petri dish in two days. In Czapek's dox agar medium the growth was very sparse. Perithecia were found to develop only in oat meal agar and malt extract agar media. The development of perithecia was confined only

to the central inoculated region in these two media. There was abundant conidial development in all the media used.

The fungus agree well with the description of *Ceratocystis adiposa* (Butl.) C. Moreau. This species was first described from sugarcane culms from India as *Sphaeronema adiposum* in 1906 (Butler, 1906). Both Hunt (1956) and Griffin (1968) in their monographic studies placed *C. adiposa* under the group in which the ascospores are without

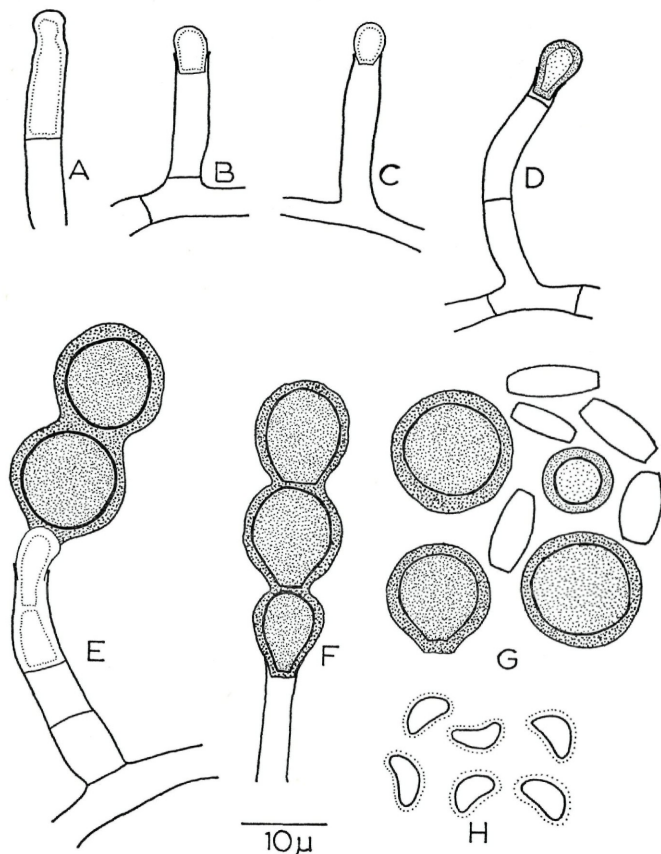


Fig. 1. A—F: Developmental stages of conidia — G: Conidia — H: Ascospores.

a sheath. The sheath was also not mentioned by Sartoris (1927). But the present fungus resembles *C. adiposa* in all other characters except the sheath. Perhaps the earlier authors have missed the existence of sheath and hence the description of *C. adiposa* is emended here.

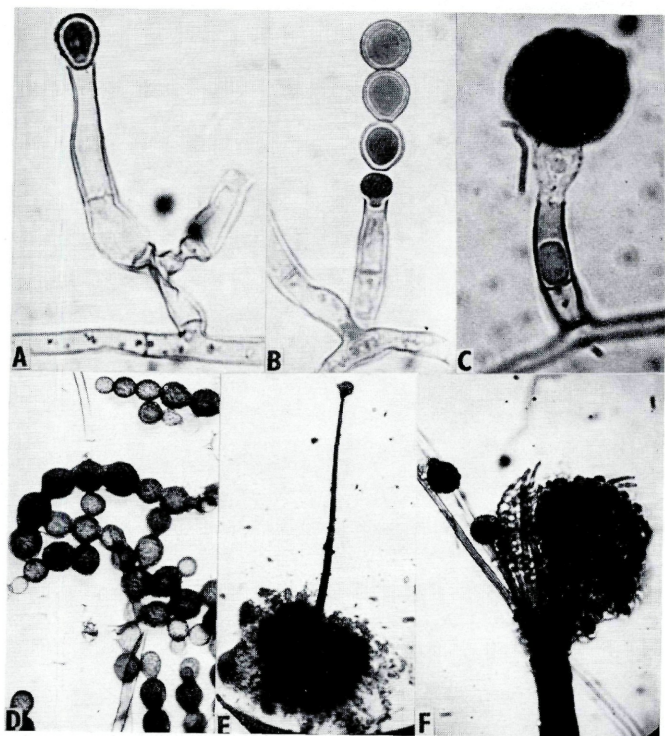
References

- Butler, E. J., 1906. Fungus diseases of sugarcane in Bengal. India Dept. Agr. mem., Bot. Ser. 1: 1—53.
Griffin, H. D., 1968. The Genus *Ceratocystis* in Ontario. Can. J. Bot. 46: 689—718.
Hunt, J., 1956. Taxonomy of the genus *Ceratocystis*. Lloydia 19: 1—59.
Sartoris, G. B., 1927. A cytological study of *Ceratostomella adiposum* (Butl.) comb. nov., the black rot fungus of sugarcane. J. Agric. Res. 35: 577—585.

Explanation to Plate: Plate 1

A—C: Developmental stages of conidia ($\times 1000$) — D: Spore chain with the outer sheath ($\times 400$) — E: Entire perithecium ($\times 70$) — F: Tip of the perithecium ($\times 630$).

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