solution and observed under the microscope for the presence of the cellulosic cell wall. All treatments were in triplicates. The resultant enzyme substrate mixture from each watch glass was tested for enzyme activity by the reducing group method. For the Somogyi's reducing group method[5], 4 ml of the resultant enzyme substrate mixture was taken and assayed at 25 ± 1° C. Likewise, another portion of 4 ml of the mixture was assayed against 1 ml of 1% Na-CMC (sodium-carboxymethylcellulose). The results obtained are presented in the given Table I and Plates A (*i*) and A (*ii*).

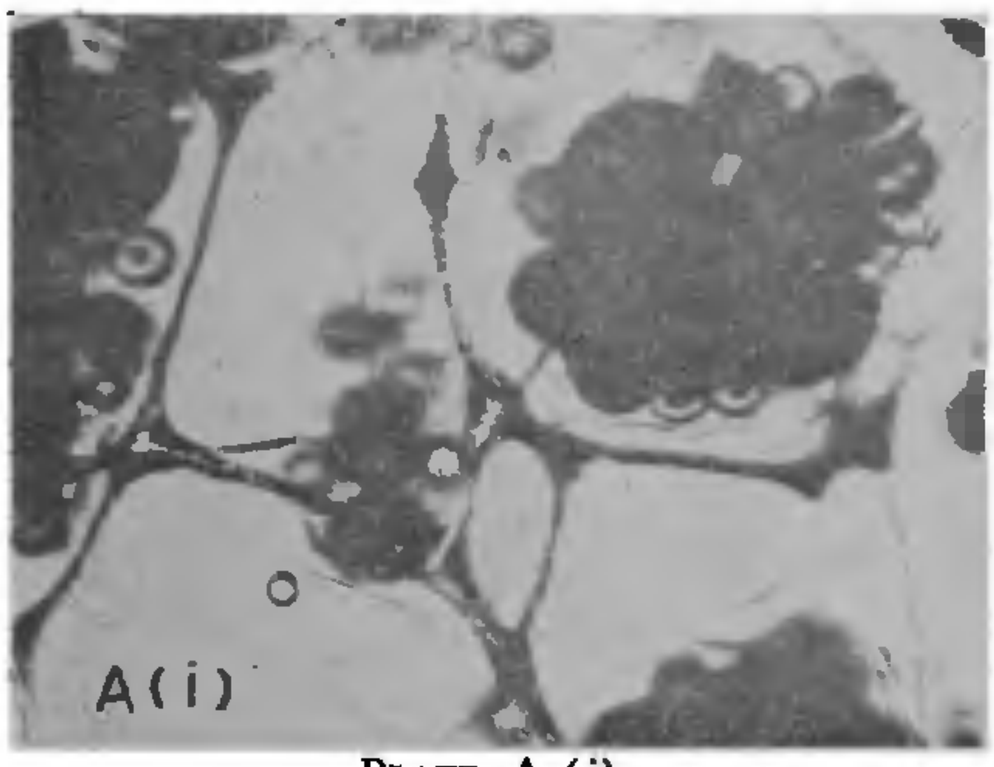

PLATE A (*i*)

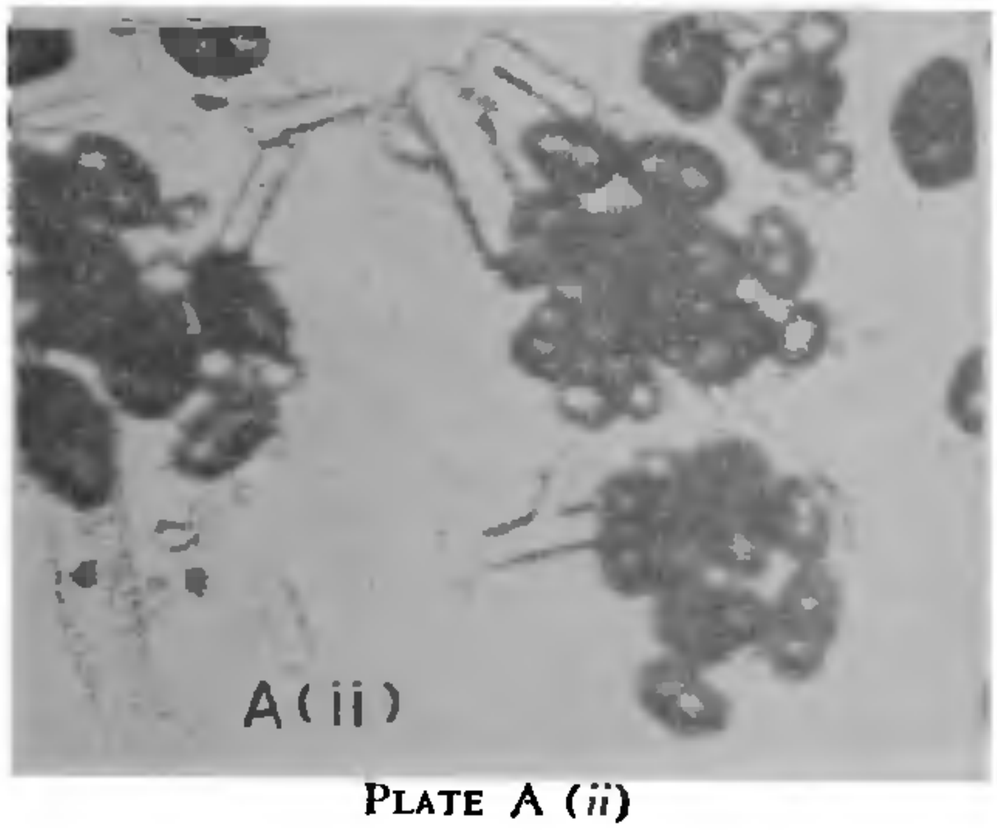

PLATE A (*ii*)

It is clear from Table I that cellulase activity was maximum at 24 hours reaction time. This result was further amplified by the histochemical detection as seen in Plates A (*i*) and A (*ii*). When compared with the control Plate A (*i*), the Plate A (*ii*) reveals that, the cell walls are completely broken down and there is no staining by chlorozinc iodide, thus indicating, the degradation of the cellulosic cell walls, by the enzyme cellulase.

The nature of a cell separating enzyme (CSE) was studied by Suzuki *et al.*[6], but the fact that the cellulolytic component of cellulase was responsible for degradation of cell walls of potato was elucidated with *Trichoderma viride* cellulase[4]. Toyama has isolated sweet potato starch using CSE from *Rhizopus*, sp., together with cellulases from *T. viride*[7]. However, the present result is probably, the first on the enzymatic degradation of cell walls by only cellulases from *A. brassicae*.

TABLE I

Reaction time (hrs.)	Cellulase activity at pH 5·6 ml $Na_2S_2O_3$	
	Mixture	Mixture + Na-CMC
2	1·3	1·8
4	1·6	2·0
4	2·0	2·5
16	2·7	3·4
24	3·4	4·1

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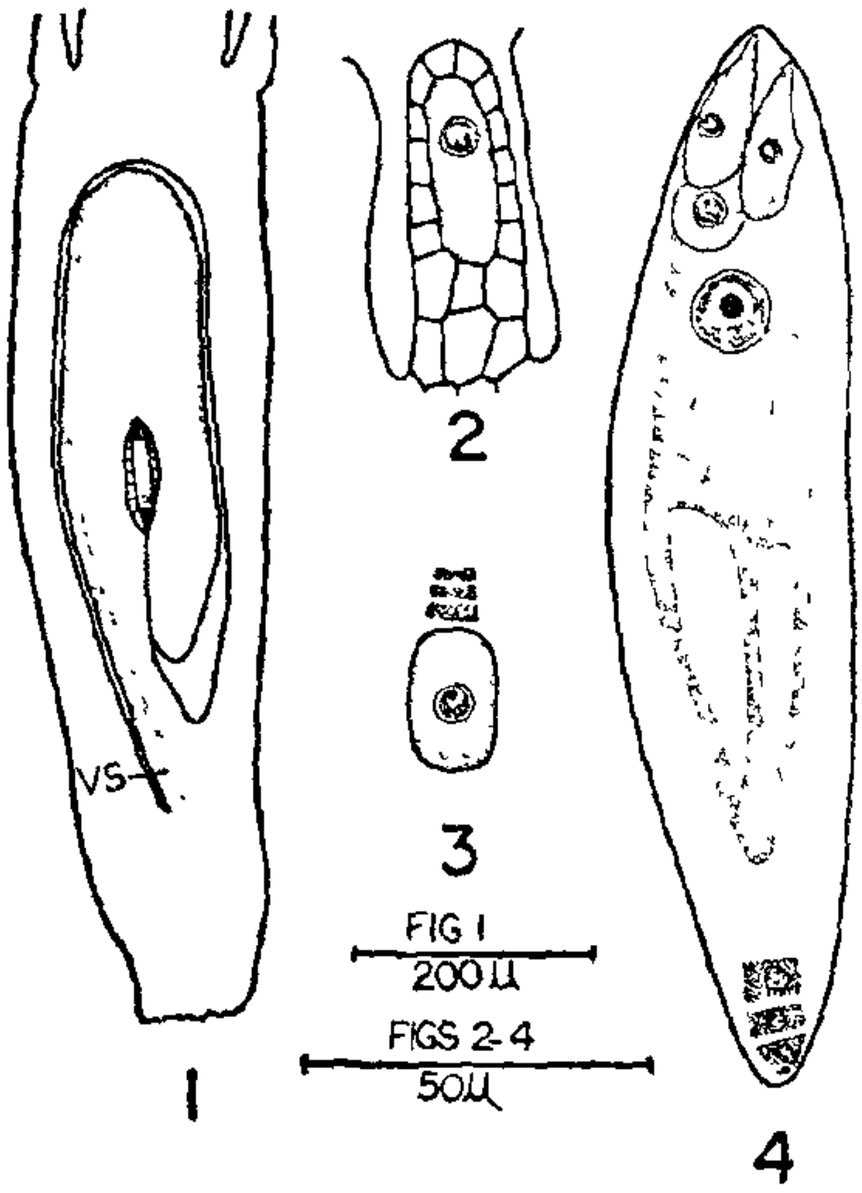
DEVELOPMENT OF FEMALE GAMETOPHYTE IN *HYMENTHERUM TENUIFOLIUM* CASS.

EARLIER embryological literature in the family Compositae has been reviewed by Davis[1]. The embryology of *H. tenuifolium*, however, has not been investigated so far and therefore, the present article deals with the development of female gametophyte in this species of ornamental value.

The bicarpellary, syncarpous and unilocular ovary contains a single anatropous, unitegminal and tenuinucellar ovule attached at the base of the locule. The vascular supply of the ovule passes the funiculus and ends on the antiraphe side of the integument (Fig. 1).

The female archesporium is single celled and hypodermal in position. The archesporial cell functions directly as the megaspore mother cell

(Fig 2). Meiosis in the megaspore mother cell results in the formation of a linear tatrad of megaspores (Fig. 3). The chalazal megaspore is functional and gives rise to an 8-nucleate embryo sac of the Polygonum type as a result of three successive free nuclear divisions. The three antipodal cells are arranged in a linear row and the secondary nucleus lies near the egg apparatus. The synergids are hooked (Fig. 4).



FIGS. 1–4

We are grateful to Dr. T. N. Khoshoo, Dy. Director-Incharge, National Botanic Gardens, for encouragement.

National Botanic Gardens, Lucknow, *July* 14, 1975.

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DOTHICHIZA PADI SACC. AND ROUM.— A NEW RECORD TO INDIA

DURING his mycological survey in the hill stations of Maharashtra, the writer collected a fungus belonging to the family Phomaceae on dried twigs of *Calotropis gigantia* R. Br., at Mahabaleshwar. An examination of the fungus revealed the following characters :

Pycnidia subcortical, dark, non-ostiolate, breaking out irregularly ; conidia hyaline, one celled, ovoid to cylindrical.

Based on these observations the fungus was dentified as a species of the form-genus *Dothichiza* Lib. The genus was established by Libert in 1880 and the type species is *D. populae* Sacc. and Br. The present fungus was identified as *D padi* Sacc. and Roum. on the basis of comparative study. This is the first report of its occurrence in India and the description is as follows :

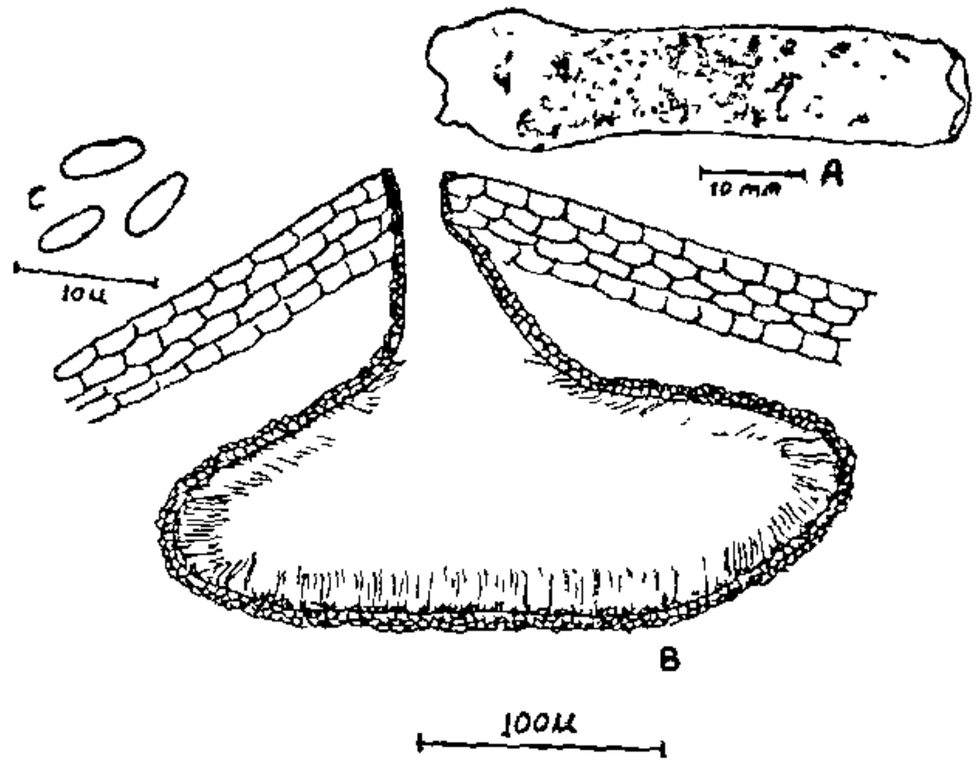

FIG. 1. *Dothichiza padi* Sacc. and Roum. A, Portion of stem showing pycnidia ; B, Pycnidium in section ; C, Conidia.

Dothichiza padi Sacc. and Roum.
Syll. Fung., 1884, 3, 671.

Pycnidia separate, gregarious, erumpent from bark appearing as minute specks on the stems, dehiscing irregularly, subcortical, subglobose to disc-shaped, brown to dark brown, measuring 198·0–409·0 × 49·0–99·0 μ. Conidiophores simple, hyaline, slender, measuring 9·9–16·5 × 1·0–1·7 μ. Conidia hyaline, one celled, ovoid to cylindrical, smooth walled, measuring 6·4–9·9 × 1·7–3·3 μ.

On dry stems of *Calotropis gigantia* R. Br., Mahabaleshwar, 23–12–1974, V. V. Golatkar. Herb. A M H 2565.

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V. V. GOLATKAR.

SOME PARASITIC FUNGI ON *CYNODON DACTYLON* FROM VARANASI

Cynodon dactylon Pers., a grass of medicinal value and also used for lawns, is distributed throughout India[2]. A number of pathogenic fungi have been recorded on *C. dactylon*[1,3–5]. Nine parasitic fungi on *C. dactylon* are being reported here for the first