indication of such flowers being long-styled. The stylar length was 3·25 mm in short styled ones while 3·96 mm in long-styled ones. Stigma emergence coincided with anther dehiscence in only, *P. pumilla, argentea* and in short-styled flowers of *P. ovata.* In other species, *viz., Psyllium, coronopus, lagopus, lanceolata* and *albicans* stigma emerges earlier than anther dehiscence; the time lag ranged between 40·8 and 76·8 hrs (Table II). Thus, these species expressed protogyny like *P. ovata* (long-styled flowers).

3. *Stigma receptivity and anther dehiscence*: The stigma in *P. ovata* appears to be single in bud stage having pointed apex covered with hairs. But next day when flower opens, it splits into two. In long-styled flowers, stigma becomes receptive as soon as it protrudes out of the bud. This happens 48 hrs before anther dehiscence. In short-styled flowers, stigma receptivity synchronises with the time of anther dehiscence. Thus, the long-styled flowers were protogynous which fact is of importance to the breeder in the maintenance of purity of seed and in developmet of appropriate breeding methods.

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INCIDENCE OF *HAPALOPHRAGMIOPSIS PONDEROSUM* (SYD. & BUTL.) THIRUM. ON *ACACIA LEUCOPHLOEA* WILLD.

Hapalophragmiopsis ponderosum (Syd. and Butl.) Thirum[1,2] causes the production of large galls and imparts a striking appearance to *Acacia leucophloea*, Willd. a very common tree on the Poona University campus. As reported by Thirumalachar, the early stages of infection occur during the flowering seasons. Galls are formed either by infection of flower buds or very young twigs. Thereafter, the growth of the infected portion is very rapid due to hyperplasia, ultimately resulting in the formation of a tumour.

In view of the fact that details of the history of the rust were not known completely, attempts were made to examine critically all stages in the growth of the plant and trace the actual initiation of infection. A special search was made for alternate hosts and observations on withered and healthy pods falling on the ground around the *Acacia leucophloea* trees.

The seedlings from the seeds germinated during monsoon season and were collected for detailed study. Surprisingly, the young seedlings, also show gall formation at the nodal, internodal and leaf regions (Fig. 1). Thus, it is clear that the infection occurs at the seedling stage.

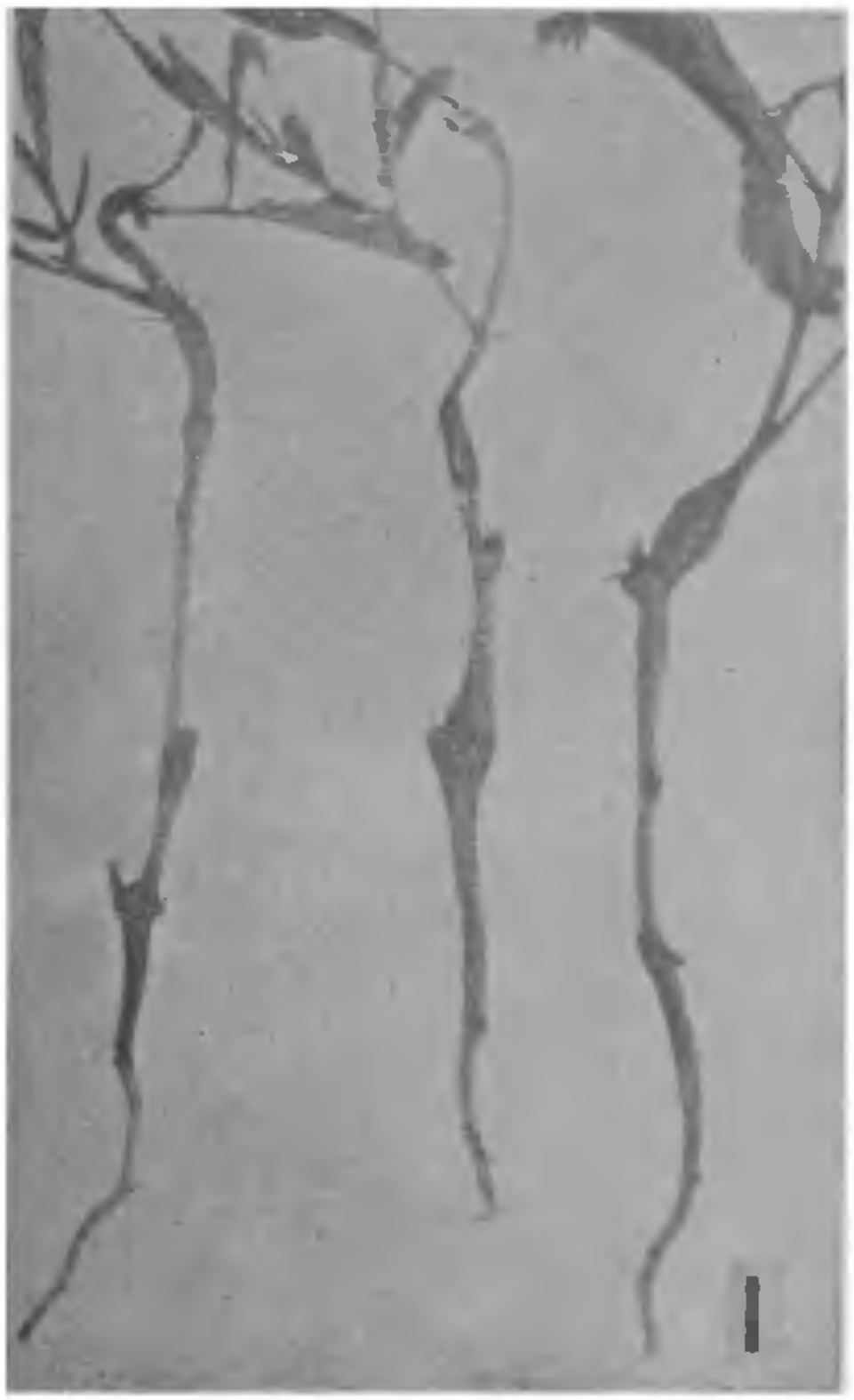
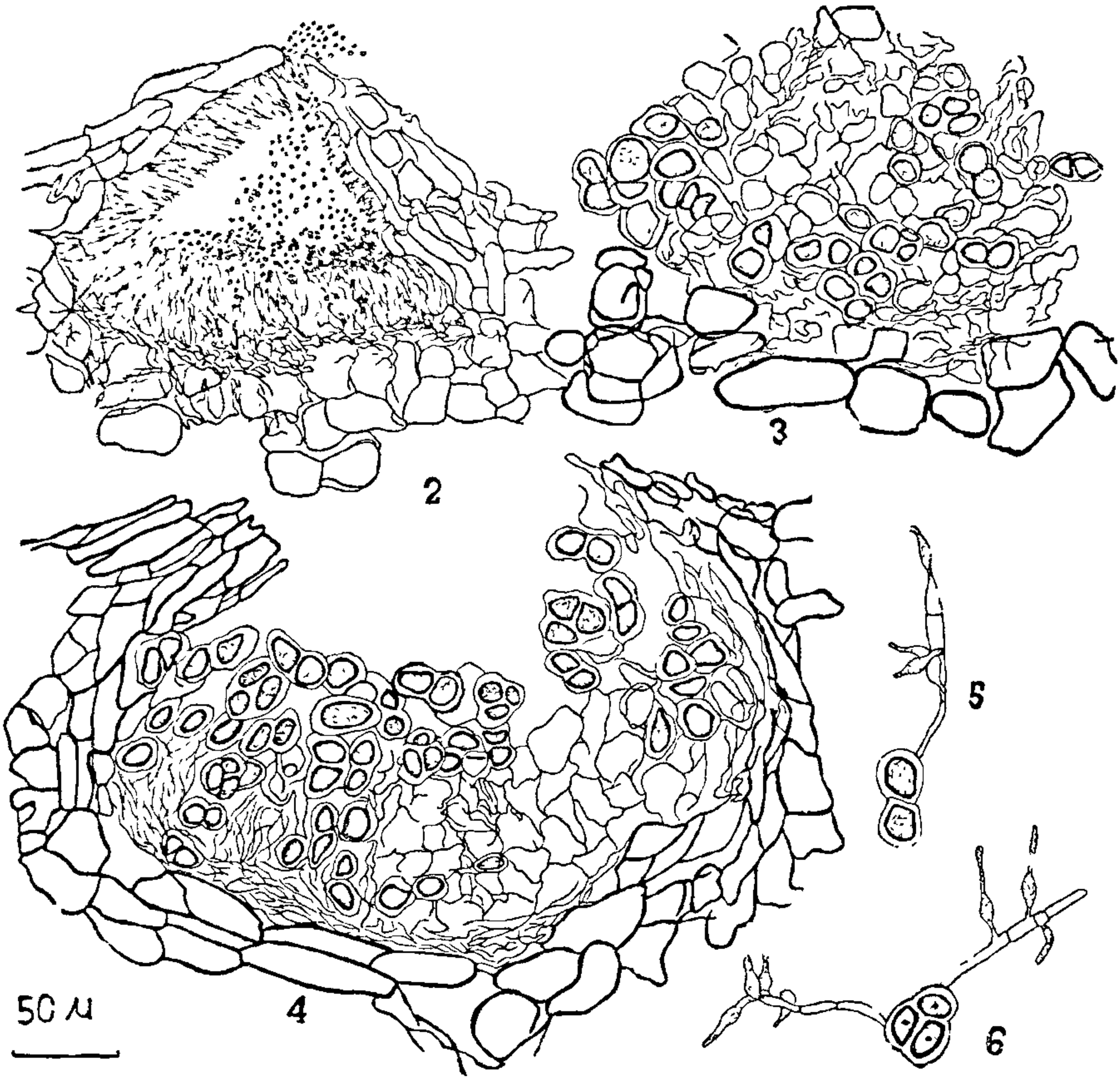


FIG. 1. *Acacia leucophloea* seedlings showing young galls.

Transverse sections from the infected portions showed the presence of Pycnial, early Telial (Uredial) and Telial stages. Pycnial cups are subepidermal, conical with a flat basal hymenium. Pycniospores are oval or spherical (Fig. 2). Infected swollen portion just before the appearance of telial stage, showed single-celled immature uredospores mixed with teleutospores (Fig. 3). A section through the tiny black specks appearing on the infected portions showed telia with three-celled brown coloured teleutospores (Fig. 4).

Germination of the teleutospore was studied, following the method of Thirumalachar[1]. Teleutospores germinate producing a four-celled promycelium, which abstricts a basidiospore at the tip. (Figs. 5 and 6). Basidiospores start germinating when still attached to the sterigmata producing germ tubes (Fig. 6).

Thus our studies show that *Hapalophragmiopsis ponderosa* to be systemic and seed-borne.



FIGS. 2–6. Fig. 2. Pycnil stage. Fig. 3. Uredospores mixed with teleutospores. Fig. 4. Telial stage, Figs. 5. and 6. Germinating teleutospores.

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AMELIORATION OF DROUGHT INJURY IN RICE BY CHEMICAL SPRAYS

EFFORTS made so far to evolve high yielding rice cultures for drought areas are meagre[1]. Several chemicals have been suggested to be useful in reducing the drought injury in different crop plants[2]. In the present investigation, the effect of foliar spray of seven growth regulating chemicals in ameliorating drought injury has been examined under pot culture experiments.

Two early cultivars, *CR.* 143-2-2 (*CR.*143) and *Cauvery* (100–105 days total duration) were grown in pots containing 7 kg dry soil with normal irrigation up to 30 days after sowing (DAS) and later subjected to two cycles of drought (FC to WP) during the period 30 to 45 DAS. At the end of each drought cycle