Actively growing material from cultures was fixed and studied cytologically employing Godward's iron alum acetocarmine technique[5]. Nuclear divisions followed the normal pattern of mitosis and $n = 16$ chromosomes were determined at late prophases and metaphases.

Some concerted attempts were also made to break the dormancy of oospores with a view to studying meiosis, since meiosis in this alga is assumed to be zygotic as in all haplonts although there is no direct cytological evidence. Oospores of varied age groups were subjected to both physical (temp., light, drying and flooding, UV light) and chemical (sulphuric acid, pH, gibberellic acid, indole-acetic acid, potassium nitrate, thiourea, kinetin) agents from time to time over a period of eighteen months; the results were totally negative. However, earlier work in algae[6–15] has shown that the factors inducing zygospore germination in one case need not necessarily be successful in others. It may be that germination of oospores in *S. annulina* either requires a more complex treatment or is not at all inducible before the natural dormancy period expires. It also appears probable from the present study that the extremely short vegetative period and a highly prolonged dormancy of oospores may be the chief reasons for the rare and discontinuous occurrence of this alga in nature.

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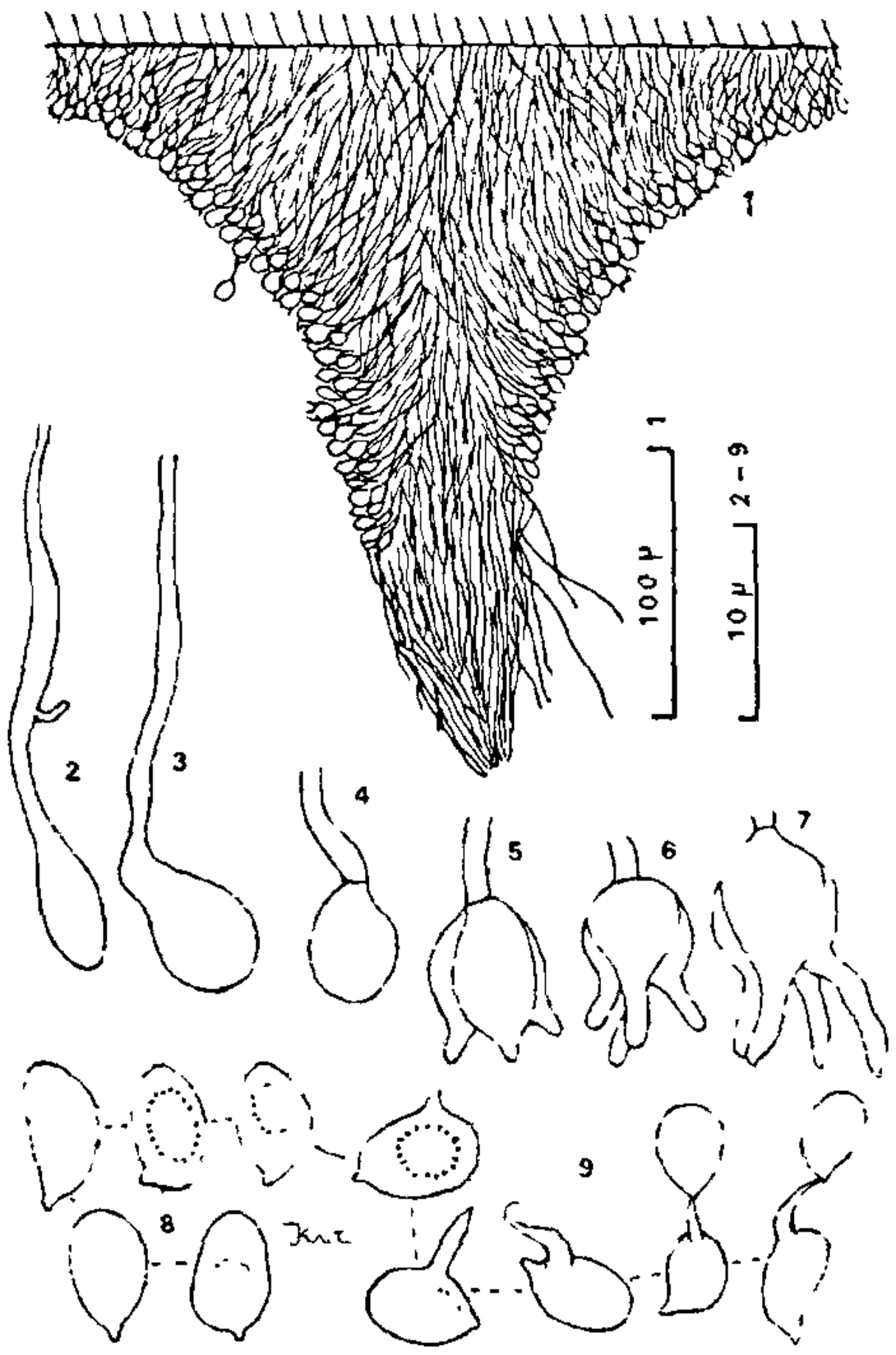
PROTODONTIA UDA IN INDIA

Protodontia uda v. Hähnel, an interesting tremellaceous fungus, was recently collected from Kodaikanal, Tamil Nadu. A brief description of the same with illustrations is given in this note, since the fungus is a new record for India.



FIGS. 1–9. *Protodontia uda*. Fig. 1. Habit. Figs. 2–7. Stages in the development of basidium. Fig. 8. Basidiospores. Fig. 9. Germination of basidiospores by repitition.

Protodontia uda v. Höhnel, 1907, *Sitzungsb. k. Acad. Wiss. Wien. Math. Nat. Kl. I.* **116**, 83.

Fruit-bodies resupinate, indeterminate, white when fresh, becoming yellowish on drying, consisting of slender, waxy, spine-like structures arising from a thin subiculum. The subiculum and the spines made up of thin-walled, hyaline, 1·3–2·6 μm wide hyphae which are simple-septate. Spines 100–180 μm long, cylindrical, up to 100 μm wide at the base, gradually tapering towards the apex to a diameter of about 25 μm, and fertile up to about 3/4 of the length; tips of spines sterile. Basidia forming an indistinct hymenium along the sides of the spines which may extend to the subiculum also; they consist of a globose to

subglobose, hyaline, cruciately septate metabasidium (5·2–7·8 μm diam.) which bears four long (up to 6·5 μm) and slender (1·3–2·0 μm wide) sterigmata. Basidiospores continuous, oval or short-cylindric, slightly curved, apiculate, hyaline, smooth and 4·6–5·9 × 3·3–3·9 μm. The basidiospores germinate by repetition and the secondary spores produced are similar to the basidiospores.

Material examined: On decaying wood, Tiger Shola, Kodaikanal, Tamil Nadu, Coll. K. V. Chandrashekara, 23–8–1977, Herb. MUBL No. 2366.

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ACID AND ALKALINE PHOSPHATASE ACTIVITY IN THE UTERUS OF RAT TREATED WITH *HIBISCUS ROSA-SINENSIS* LINN. EXTRACTS

THE flowers of *Hibiscus rosa-sinensis* Linn. (vern. Java), reported to possess contraceptive activity[1], have been confirmed for their antifertility efficacy in rats[2–4]. Its total 50% ethanolic and benzene extracts have also been reported to have significant antiestrogenic activity[5]. In view of the antiestrogenic action of these extracts, the present communication deals with their effect on acid and alkaline phosphatase activity of the uterus in adult rats as these enzymes are estrogen dependent.

Total 50% ethanolic and benzene extracts of *Hibiscus rosa-sinensis* (flowers) were obtained and each extract was macerated with gum-acacia supended in distilled water at dose of 75, 150 and 300 mg/kg body weight as described earlier[4] and was administered orally with the help of an intragastric catheter.

Colony-bred Swiss adult female albino rats, 3–4 months old, weighing 165 ± 15 g, were selected and two extracts were administered orally for 3 different durations as described earlier[6], to different batches of animals (Tables I, II). Control rats received vehicle only in a similar manner. The animals of each dose of the two extracts were sacrificed in diestrus stage and 48 h after the last dose, *i.e.*, on 8th, 14th and 20th day respectively. Rats showing stages other than diestrus were rejected. The uteri were carefully dissected out, trimmed, blotted on filter-paper and weighed to nearest 0·1 mg. The weighed tissue from different animals was kept separately in freezer for 48 hours, homogenized and processed for the estimation of the acid and alkaline phosphatases, using the method of Hawk *et al.*[7] with some modifications[8]. The results were statistically analysed using analysis of variance.

Table I summarizes the effect of these plant extracts on acid phosphatase activity of the uterus of rat. Both 50% ethanolic and benzene extracts evoke a significant increase in the activity and also reveal a clear-cut dose-response relation. 75 mg/kg dose of 50% ethanolic extract is significant and increases the activity when administered for 18 days only (*vs.* control $P < 0·01$). Similarly its 150 mg/kg dose when applied for 12 and 18 days schedule increases the activity of this enzyme significantly (*vs.* control $P < 0·01$ and $< 0·005$ respectively). Dose, 300 mg/kg is remarkably effective where the activity increases significantly at every schedule; however, it is maximum at 18 days level (*vs.* control $P < 0·001$). Benzene extract at doses 75 and 150 mg/kg when applied for 12 and 18 days have increased the activity significantly (*vs.* resp. control $P < 0·05$ and $< 0·001$ respectively). Its 300 mg/kg dose is highly significant at every duration to increase the activity (*vs.* control $P < 0·001$).

Table II shows the effect of these plant extracts on alkaline phosphatase activity of the uterus of rat. The effect of 50% ethanolic and benzene extract on uterine alkaline phosphatase activity is dose and duration dependent. 75 and 150 mg/kg doses of 50% ethanolic extract when administered for 18 days decrease the activity significantly (*vs.* control $P < 0·01$ and $< 0·001$ respectively). Its 300 mg/kg dose provokes more consistent results where every duration is effective to decrease this enzymatic activity; however, it is highly significant at 18 days schedule (*vs.* control $P < 0·001$). Similarly 75 mg/kg dose of benzene extract when administered for 18 days, diminishes the alkaline phosphatase activity (*vs.* control $P < 0·02$). Its 150 and 300 mg/kg doses when applied to adult rat at any of the schedules decrease the activity of this enzyme significantly (*vs.* respective control $P < 0·001$; $< 0·01$ and $< 0·02$). However, 300 mg/kg dose shows more encouraging results where every dose is statistically significant at highest level (*vs.* control $P < 0·001$).

Synthetic estrogen is well known to increase the acid phosphatase activity of the uterus of rat[9] but reports from other laboratories[10,11] suggest that progesterone is responsible for the increase in the concentration of acid phosphatase in the rat uterus. Similarly, inhibition in the alkaline phosphatase activity of the rat uterus is observed after progesterone treatment[10]. On the contrary, progesterone causes an increase in the alkaline phosphatase activity in the uterus of rat[12]. In the present investigation, both 50%