Erythraeinae Anther tapetum is generally of the glandular type. In *C. diffusa* and *C. decussata*, it is of the amoeboid type. Cytokinesis in pollen mother cells is of the simultaneous type. Pollen grains are usually tricolporate. But in *Centaurium ramosissimum*, tetracolporate pollen grains occur in addition to tricolporate ones. They are usually two-celled at the shedding stage. But 2- and 3-celled pollen grains are found in the same pollen sac in *Canscora diffusa*.

The parietal placentae protrude deep into the ovarian cavity to varying degrees. The female archesporium is usually single-celled. In *Canscora decussata* and *Centaurium ramosissimum*, however, it is multiple. Megaspore tetrads are linear while in *Erythraea roxburghii* (*Centaurium roxburghii*), T-shaped tetrads are found. Embryo sac development is consistently of the Polygonum type in all the members. Fusion of the polars in all the cases is before fertilization. Synergids are smooth in all except in *Centaurium ramosissimum* where they are hooked. Antipodal cells remain healthy at the time of fertilization in *H. dichotoma* and persist till the 2-nucleate stage of the endosperm in *Centaurium ramosissimum* while they are ephemeral in all the other members. Endosperm development (Nuclear) and embryogeny (Solanad type) are uniform throughout the taxon. Polyembryony is observed in *Erythraea centaurium*.

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OBSERVATIONS ON TISSUE CHANGES CAUSED AT THE SITES OF ATTACHMENT OF THE NEMATODES, *TANQUA ANOMALA* AND *DISPHARYNX NAUSTA*

Tanqua anomala (Linstow, 1904) Baylis, 1916; without exception, occurs embedded in a pit on the stomach wall. As soon as the body of the water-snake *Tropidonotus piscator* is opened the infection of these worms is noticeable from outside due to pit formation. Every worm forms a pit (Fig. A) for itself. In section (Fig. B) the pit appears to be well-defined and the mucosa and submucosa of the pit are seen eroded. However, the circular muscles are not affected.

FIGS. A–C. 'Fig. A. *Tanqua anomala* (Linstow, 1904) Baylis, 1916. Worms *in situ*. Note the pits on the stomach wall. Fig. B. *Tanqua anomala* (Linstow, 1904) Baylis, 1916. The head bulb in the pit, Sagittal section. Note the erosion of the mucosal and submucosal layer of the stomach. A patch of the inflamatory tissue seen in the region of the attachment of head bulb to the wall of stomach. Fig. C. *Dispharynx nausta* (Rud., 1819) Railliet, Henry and Sisoff, 1912. Anterior end in the pit, Sagittal section. Note the erosion of the mucosal and submucosal layer of the duodenum. Heavy infiltration of macrophages, lymphodytes and eosinophils seen.

The worm is intimately fastened to the pit wall and specifically all round the head is visible a very thin layer of matrix. The worm has hooks and transverse striations on the head bulb, an adaptation for attachment to the host tissue. The Pits ($n = 10$) vary

from 0·015–0·022 mm in diameter. In addition to pit formation, there is inflammatory reaction in the host tissue and a patch (Fig. B) of collagen fibres is formed at the site of attachment. It is stained blue by aniline blue of Mallory's triple stain.

The worm *Dispharynx nausta* (Rud., 1818) Railliet, Henry and Sisoff, 1912 is also embedded in pits on the duodenal wall of a common Myhnah, *Acridotheres tristis tristis*. Every worm forms a pit for itself. In section (Fig. C), the mucosa and submucosa of the pit are seen eroded. The worm is attached to the wall by the anterior triangular lips and the cordons. In the area surrounding the attachment to the pit a heavy infiltration with macrophages, lymphocytes and eosinophils is observed.

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EFFECT OF ZINC PHOSPHIDE (RODENTICIDE) ON SOIL ALGAE

IN the present investigation the authors made preliminary observations on the effect of zinc phosphide on the soil algae of black cotton fields from Shendurjanaghat of Amraoti District (Maharashtra). Zinc phosphide is a potential rodenticide used in agriculture. The effect of zinc phosphide on soil microorganisms has been presented in this note.

Three different concentrations (0·2%, 0·4% and 0·6%) of this chemical were used to study the effect on the survival of algae. The algal members of the soil sample were studied by means of De's[1] modified Beneck's liquid culture medium. Twenty algal taxa are reported in Table I. Of these 15 belong to Cyanophyceae, 4 to Chlorophyceae and 1 to Bacillariophyceae. Since zinc phosphide is insoluble in water, its suspension in distilled water was used as the stock solution. Twenty ml solution of the three concentrations of this rodenticide were added to different flasks containing 5 g of the soil sample and 200 ml of nutritive culture media. To the flasks serving as control, equal amount of distilled water was added in place of this rodenticide solution. All the culture flasks had uniform diffused sunlight from the north. The algal forms were identified periodically upto 60 days. The total number of algae present in various concentrations of this rodenticide are listed in Table I.

TABLE I

Table showing survival of algae in zinc phosphide treatment

Sr. No.	Algal sp. present in control soil	Concentration in % 0·2	0·4	0·6
1.	*Aphanothece stagnina*	A	A	A
2.	*Aphanocapsa biformis*	A	A	A
3.	*Phormidium luridum*	P	P	P
4.	*Lyngbya stagnina*	A	A	A
5.	*Cylindrospermum musicola*	A	A	A
6.	*Nostoc sphaericum*	A	A	A
7.	*Nostoc punctiforme*	P	A	A
8.	*Anabaena sphaerica*	P	P	A
9.	*Anabaena attenuata*	A	A	A
10.	*Anabaena spiroides*	A	A	A
11.	*Anabaena oryzae*	A	A	A
12.	*Calothrix bharadwajae*	A	A	A
13.	*Calothrix elenkinii*	A	A	A
14.	*Hapalosiphon welwitchii*	A	A	A
15.	*Westiellopsis prolifica*	A	A	A
16.	*Chlorococcum humicolo*	P	P	P
17.	*Chlorococcum vitiosum*	P	A	A
18.	*Protococcus viridis*	P	P	P
19.	*Closterium* sp.	P	P	P
20.	*Tabellaria* sp.	P	A	A
No. of algal species 20		8	5	4
Survival percentage		40	25	20
Mean survival percentage			28·3	
Algicidal value		60	75	80
Mean algicidal value			71·7	

P = Present, A = Absent.

Phormidium luridum, Chlorococcum humicolo, Protococcus viridis and *Closterium* sp. were found to be quite resistant, growing well in all the concentrations used. Whereas, *Nostoc punctiforme, Anabaena sphaerica, Chlorococcum vitiosum* and *Tabellaria* sp. were observed only at the lower concentrations of rodenticide. The remaining algal species were found to be highly susceptible to these treatments. The algicidal potential of this rodenticide was estimated as 60%, 75% and 80% in 0·2%, 0·4%, 0·6% concentration of the rodenticide respectively. The mean algicidal potential worked out to be 71·7% (Table I). This rodenticide is very effective in eliminating most of the algal forms. It has high algicidal potential.

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