

Germination of spores and development of Gametophyte:

The spores of Psilotum are non-sporous and they germinate very slowly. Darnell Smith (1917) studied the stages of germination and listed as follows —

1. The exine ruptures along the median slit.
2. The Intine comes out as a small globular outgrowth which gradually increases in size.
3. The outer (protruded) part is later separated from the basal part, which is within the spore wall, by a narrow wall. The young prothallus at this stage consists of two cells (upper cell and basal cell).
4. The upper cell divides to cut off an epical cell with 3 cutting faces.
5. By the activity of the epical cell a mass of thin walled cells is formed. This cellular body is invaded by the hyphae of soil fungi.

Friday

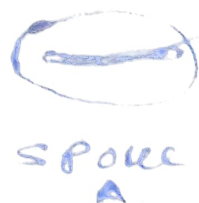
28

Mature Prothallus (Gametophyte): The gametophyte grows as saprophyte with an associated fungus. They are non-green and subterranean. The gametophyte is a cylindrical, imperfectly dichotomously branched structure with diameter of 2-5 mm. They are colourless or yellowish brown in colour. Numerous rhizoids arise from the surface of the gametophyte. Larger prothalli sometimes possess conducting tissues made of tracheids. Psilotum is the only known plant in which the vascular-tissue normally develop in gametophytic generation.



Saturday

5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	



medium slit



B

spore cell

Basal cell

upper cell



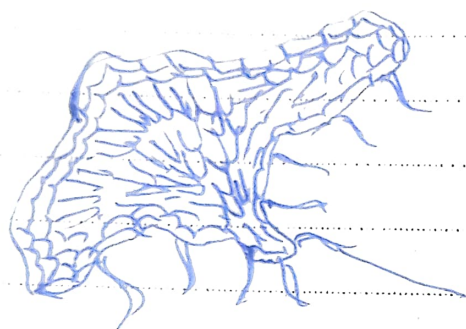
C

Apical cell



D

Basal cell



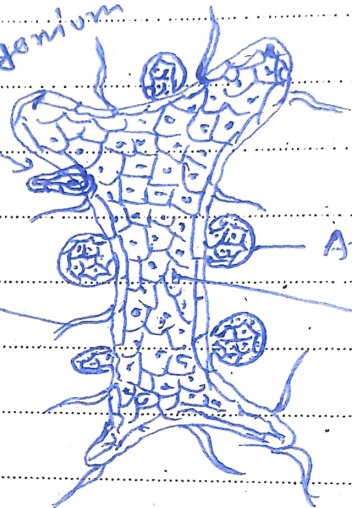
young prothallus

E

young prothallus

Antheridium

Rhizoids



Antheridium

mycorrhizal fungus

F

mature prothallus



Sunday

Stage of Development of Gametophyte (P. nudaem)