

Madrid. Szembel<sup>8</sup> reports its occurrence on wild onion (*Allium sabulosum*) growing in sand-dunes on the Caspian Sea coast in Russia. Zaprometoff<sup>9</sup> found it on wild garlic (*Allium* sp.) during his systematic investigation of the fungal flora of Russian Central Asia. Savulesen<sup>6</sup> found it on Chives (*Allium schoenoprasum*) in Romania. Nagorny<sup>5</sup> records its occurrence on onion and Leeks (*Allium porrum*) in the Caucasus.

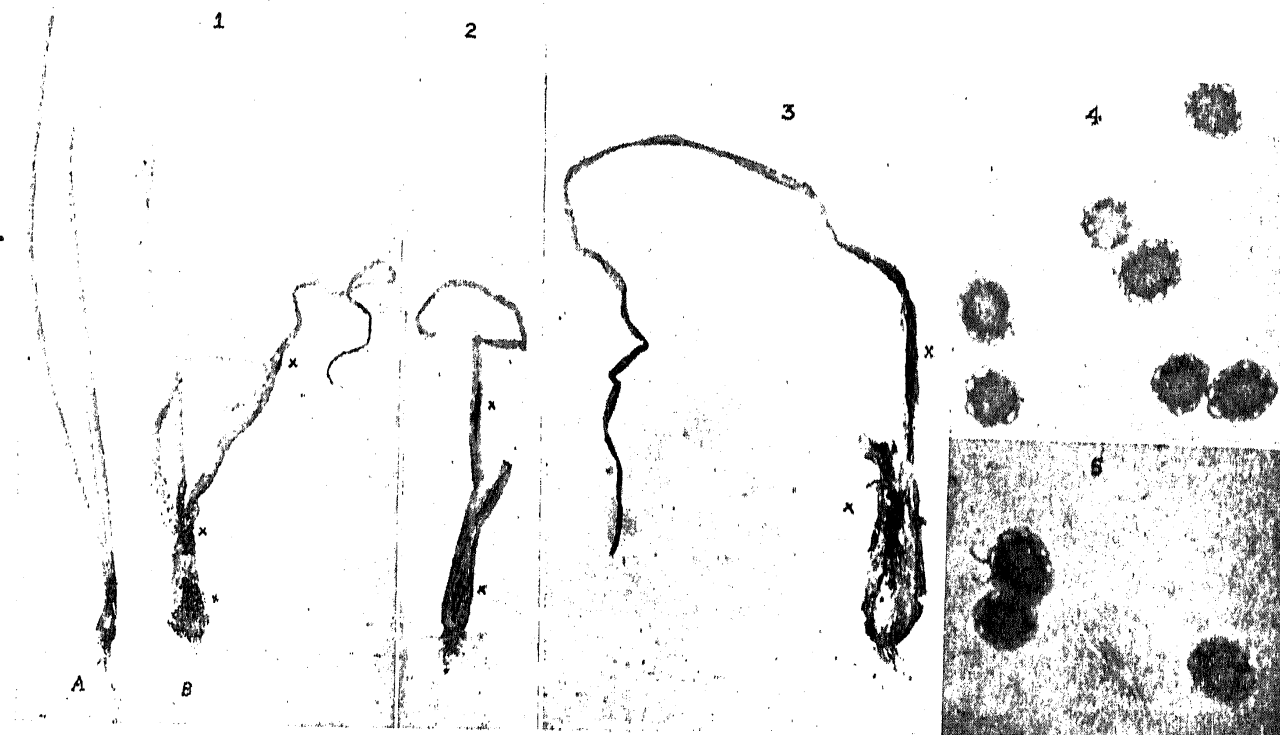
Mundkur and Thirumalachar<sup>4</sup> record *Urocystis magica* on the leaves of *Allium rubellum* M. Bieb; collected from Rawalpindi by Stewart and on leaves of *Allium sphaerocephalum* L. from Quetta by Ginai. These specimens are from Pakistan. There is no record of *Urocystis cepulae* on onion and garlic in India. Its occurrence on these two hosts in Mysore is the first report in this sub-continent.

The disease was observed in a sporadic form on the young seedlings. It was confined to a small patch in a single field. The stand of both the onion and garlic crops in the infected field was very thin. The plants remain stunted in growth, do not develop bulbs, become weakened and die.

Dark elongated, thickened, raised sori appear on the scales and leaves. These later on extend

to the entire leaf as a dark lesion (Figs. 1 B, 2 & 3). On older plants the typical smut lesions are conspicuous as raised blisters on the scales of the bulbs and at the basal portions of the leaves. In severe cases of infection the leaves curve downwards and begin to dry up (Fig. 3). The sori burst open by the rupture of the epidermal layer and expose the black powdery mass of spores. The spore balls (Fig. 4) are dark coloured, ovoid to spherical and measure 12.4-24.8  $\mu$  (average 17.8  $\mu$ ) in diameter. The sterile appendage spores numbering as many as 17 (average 10) are small, thin-walled, lightly tinted, spherical and attached to the central fertile cell. They measure 1.8-8.8  $\mu$  (average 4.5  $\mu$ ) in diameter. The fertile spore is brownish in colour, spherical, single, rarely 2 in a ball, thick-walled and measure 10.6-18.6  $\mu$  (average 13.4  $\mu$ ) in diameter. These dimensions of the spores compare favourably with those recorded for *Urocystis cepulae* (Spore balls 17-25  $\mu$ , sterile spores 4-8  $\mu$  and fertile spores 12-16  $\mu$ ) by Stevens.<sup>7</sup>

The spores do not readily germinate in tap water, distilled water, soil water or in water to which onion tissue is added. They germinate slowly in 48-72 hours in rain-water and in sugar solution. The spore on germination gives rise to a characteristic short, hemispherical, hyaline basidium which produces a number of



FIGS. 1-5. Fig. 1. (A) Healthy onion plant. (B) Infected onion plant with smut sori (x). Fig. 2. Infected garlic plant with smut sori (x) on the scales and on the leaf. Fig. 3. Onion plant in an advanced stage of smut infection with the characteristic bending of the leaf and the ruptured sori (x) on the leaf and on the scales of the bulb. Fig. 4. Microphotograph of smut spore balls,  $\times 1,100$ . Fig. 5. Microphotograph of the fertile spore showing the germination with the hemispherical basidium producing hyphal branches,  $\times 1,000$ .