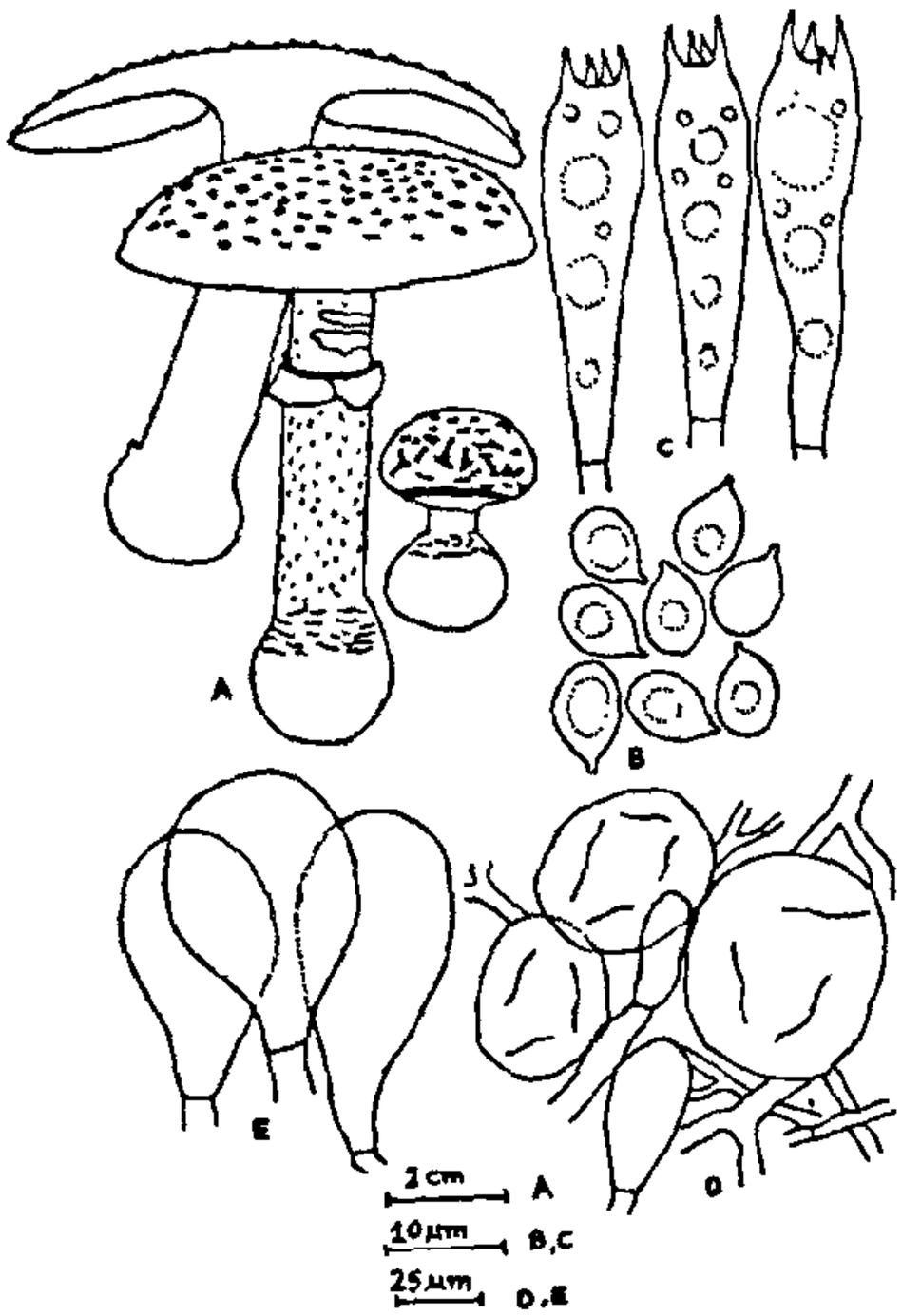

Figure 1A–E. *Amanita rubescens* (Fr.) S. F. Gray. **A.** Basidiocarps and longitudinal section; **B.** Basidiospores; **C.** Basidia; **D.** Crushed remnants of veil from pileus, and **E.** Marginal cells of lamellae.

Stipe 7–12 cm long and 1–2 cm diam., central, clavate, tapering slightly upward, stuffed, minutely fibrillose, sometimes squamulose, greyish brown to reddish brown ($9D_3$–$8E_7$), base slightly swollen. Annulus broad, superior, fragile, white, staining reddish, often striated above. Volva fragile, volval fragments adhering to the basal bulb of stipe, bulb and volval remnants both staining reddish. Flesh white, thin, soft and fragile, staining reddish when bruised or in age. Taste and odour not distinctive. Spore colour in mass white. Spores 6.5–9.5 × 4.5–6.5 µm, ellipsoid, hyaline, thin-walled, apiculate, amyloid, containing a large refractive guttule. Basidia 30–42 × 6.5–9.5 µm, clavate, tetrasporic; sterigmata 2–4.5 µm long. Marginal cells of lamellae are hyaline, thin-walled, clavate, saccate or balloon-shaped, often forming a sterile band, 20–50 × 10–30 µm. Subhymenium 12–20 µm wide, made up of pseudoparenchymatous cells. Hymenophoral trama bilateral, divergent, made up of hyaline, thin-walled hyphae, 3–18 µm diam. Pileus cutis is made up of hyaline, thin-walled, septate, branched interwoven hyphae, 3–10 µm diam., inflated to 16 µm diam. Pileus context consisting of hyaline, thin-walled hyphae, 3–30 µm diam. Remnants of universal veil from the pileus consisting of thin-walled inflated cells, clavate, ovoid to spherical in shape, up to 65 µm diam., interspersed with thin-walled, septate, branched hyphae, 2.5–10 µm diam. Clamp connections absent in all the hyphae.

Habit and habitat: Solitary—scattered. Growing on the ground in coniferous and mixed woodlands, associated with *Cedrus deodara*, *Pinus roxburghii*, *Quercus incana* and *Rhododendron arboreum*.

Specimens examined: Acc. Nos. Shimla; HPUB 1051, 1479, 1570, 1638.

Remarks: The present species is in conformity with *Amanita rubescens* (Fr.) S. F. Gray. It is reported to be edible by Lincoff[3], Wakefield and Dennis[4], and Weber and Smith[5].

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PEACOCK SPOT OF OLIVES IN INDIA

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MUCH against the fundamentals of plant quarantine[1], bulk introduction of olive (*Olea europea* L.) plant material was made in Jammu and Kashmir state

during 1985–86 under the Indo–Italian project on development of temperate climate fruit crops. A portion of the plant material was planted in Government orchard-cum-nursery at Gopalpora near Srinagar. Inspection of the plant material in May 1986 revealed the presence of leaves infected with typical peacock spot symptoms caused by *Spilocaea oleaginea* Cast. S. Hughes (=*Cycloconium oleaginea*), a new disease record in India[2]. Identity of the pathogen has been confirmed from CAB International Mycological Institute, Kew, England, and material has been deposited under IMI 321475.

Incidence of olive anthracnose (*Colletotricum gloeosporioides* Penz.) and Wilt (*Fusarium* spp.) has been reported in Himachal Pradesh[3]. Other fungi, like *Cercospora, Cytospora, Sirodesmium, Stephanotheca* and *Meliola* species, have also been reported on *O. dioica* from Kerala, Maharashtra and Karnataka[2] Peacock spot disease is of major importance in other olive-growing countries, especially in California, USA[4].

At present wild plantations of olives are abundant in the intermediate zone of Jammu and Kashmir (1350–3000 MSL). The state department of horticulture has an ambitious plan for rapid introduction of improved olive cultivars for meeting the olive oil needs of the country from exotic sources. If the imported plant material is not checked/tested for pathogens thoroughly, bulk imports of plant material discouraged and initial symptoms of serious diseases like peacock spot not noted and acted upon, such diseases are likely to pose serious management problems in future olive orchards.

The authors are grateful to Dr P. M. Kirk, CAB International Mycological Institute, Kew, England, for confirming the identity of the pathogen.

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POLLINATION STUDIES IN *SANTALUM ALBUM* L.

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SANTALUM ALBUM L. is a tree species of Santalaceae. It is distributed throughout India, but grows profusely in the southern parts of India. It is famous for its scented essential oil. The oil is obtained from the heartwood of the plant. The oil content of the heartwood varies from tree to tree, indicating that oil content is a genetically controlled character. For a tree breeding programme aimed at improved oil content, knowledge of the pattern of the genetic variation and of the reproductive biology of the species is a necessity.

Hand pollination and open pollination after emasculation were attempted. The object was to find out the pollination values under the two methods. The plants were selected randomly from the Forest Research Laboratory Campus, Bangalore. The seed source of these plants is not known and almost all the plants are in the 15–40 cm girth class. Five trees were selected for artificial selfing during 1985 and 1986. For natural outcrossing five trees were selected during 1985 and six trees during 1986.

The flower of *Santalum* is very small and non-attractive. A little quantity of nectar present inside the perianth tube is the main attractive agent. Ants, bees and beetles visit the flower for nectar, and by means of these insects the anthers come in contact with the stigma, effecting pollination. Forty to forty-eight hours after anthesis the perianth as well as the stamens turn light red and become shrivelled.

To assess the extent of pollination, the flowers were subjected to different pollination regimes such as hand pollination after emasculation, and bagging with and without emasculation for natural outcrossing. The pollination value was calculated from[1]

$$\text{Pollination value (\%)} = \frac{\text{No. of mature seeds}}{\text{No. of mature seeds} + \text{No. of immature seeds}} \times 100.$$

Repeated trials were made in both flowering seasons on hundreds of flowers. No fruit setting was observed in parthenocarpy and apomixis. However, in a separate experiment, from 500 flowers bagged for obligatory self-pollination, 4 fruits were formed (0.8%). There was success in artificial selfing and natural outcrossing, indicating that *S. album* is an