

GASTEROMYCETES OF WEST BENGAL

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Descriptions of some of the *Lycoperdon* and *Calvatia* species collected from West Bengal are presented here. There are three species of *Lycoperdon* and two species of *Calvatia*.

INTRODUCTION

Several species of Gasteromycetous fungi were reported from India by different scientists. Uptil now twenty species of *Lycoperdon* and seven species of *Calvatia* were so far reported from India. Of these, *Lycoperdon pyriforme* Schaeff ex Pers. was first reported from Sikkim, Naggar Kulu and Sonamarg (Butler & Bisby, 1931). *Lycoperdon polymorphum* Vitt. was first reported from Mussoorie and Sonamarg by Ahmed (1941). *Lycoperdon pusillum* Batsch. ex Schermacher. was first reported from Ludhiana and Ahmedabad by Chahal (1963) and the other two species of *Calvatia* Fries. Summa were collected by Rao (1964) from India and by Bottomley (1978) from South India.

Calvatia gardneri (Berk) Lloyd was first reported from Shillong, Khasi Hills (Assam), India by Bottomley (1978) and *Calvatia cyathiformis* (Bosc) Morg was reported from Ahmedabad by Rao (1964).

The present work attempts to provide information on some gasteromycetous fungi of West Bengal collected during the rainy season on the basis of modern taxonomic criteria.

MATERIALS AND METHODS

All the species were collected one or two days after shower and brought into the laboratory for further study. Spore deposits were collected immediately from the fresh sporocarps. Drawings and Descriptions of the sporocarp's habits were taken from the freshly collected specimens. Observations were made on free hand vertical sections mounted in 1% aniline blue in 50% lactic acid.

DESCRIPTION OF THE SPECIES

Lycoperdon pusillum Batsch ex Schermacher

(Text. fig. 1, a—c)

Sporocarp globose to subglobose, small, 4.5—20 mm broad, pinched to a cord like root (strongly developed hyphal strands), surface variable, usually almost smooth to naked eye. *Exoperidium* covered by minute, fugaceous, mealy, polygonal squammules or flattened warts. *Endoperidium* membranous, smooth, pale ochraceous or buff, soon becoming brown, dehiscing by a small irregular, plane stoma. *Gleba* passing through yellow to greenish yellow, becoming brownish with full maturity filling the entire peridium. Subgleba absent; Capillitium threads brown, continuous, branched, attenuated at the tips; 5.2—6.5 μ m in diameter; Wall more or less pitted. *Spores* globose, 3.9—6.5 μ m in diameter, thick walled, minutely verrucose with a short pedicel.

Hab : on the ground.

Dist : Calcutta, West Bengal

Collected by A. Roy and N. Samajpati.

Lycoperdon polymorhum Vitt.

L. caaeforme Bull.

(Text. fig. 1. d—g)

Sporocarp 1.3-4 cm in diam. and 1.5—4.5 cm high, subglobose to shortly pyriform with a sterile base and characteristically with a conspicuous, stout root which may ramify in the earth and connect individuals of a group. *Exoperidium* in dry state dull brown to olivaceous brown, varying to a brighter reddish yellow, thin and papery, the scales occasionally confluent so as to give a tomentose aspect, more or less persistent dark brown coloured. *Endoperidium* ochraceous, becoming amber, papery, smooth, dehiscing by a large, irregular, apical stoma. Sterile base minutely or obscurely chambered, diaphragm absent. *Gleba* yellowish, becoming light brown with maturity, *Capillitium* threads pale olivaceous freely branched, septate, 5.2—6.5 μ m in diameter. *Spores* globose to subglobose 3.9—4.7 μ m in diameter; epispore slightly darker than the *Capillitium* threads, echinulated, with a halo apiculate.

Hab : on the ground

Dist : Calcutta, West Bengal

Collected by A. Roy and N. Samajpati.

Lycoperdon pyriforme Schaeff ex Pers

(Text. fig. 1, h—j)

Sporocarp pyriform, often crowded, 3.5 — 5 cm high and 4.5 — 5 cm broad, usually much smaller; tapering towards the base forming a well marked diaphragm; Colour milky white when fresh and becoming red brown on drying or with maturity; rooting by means of pure white strands of mycelium. *Exoperidium* thin, surface composed of minute warts, white to reddish brown, very persistent, sometimes cracked into distinct areas.

Endoperidium thin, tough, smooth, dehiscence by a minute apical pore (stoma). *Gleba* large with ill defined chambers, changing through greenish yellow to deep olive brown at maturity, subgleba rather small; occupying only the constricted base. the chambers are very small. *Capillitium* branched, brownish olivaceous, main threads from $3.9 - 6.5\mu\text{m}$ in diameter, tapering to the tips. Spores spherical, smooth, with a large oil drop, deep olive brown with maturity, $3.72 - 4.7\mu\text{m}$ in diameter.

Hab : on soil, in open field

Dist : Calcutta, West Bengal

Collected by A. Roy and N. Samajpati.

Calvatia gardneri (Berk) Lloyd.

(Text. fig. 2, A—C)

Sporocarp turbinate, 10 cm x 8 cm in diameter, upto half of the height being occupied by the minutely chambered base, diaphragm absent. *Exoperidium* thin, breaking into small, dark rufous, angular, fugaceous scales or tufts over the fertile region. *Endoperidium* fawn coloured, brittle, peeling of in irregular patches. *Gleba* ochraceous. *Capillitium* threads honey coloured, fairly straight, $6.5 - 7.8\mu\text{m}$ in diameter with few large pits. *Spores* globose to subglobose, slightly rough to minutely spiny, honey coloured, $5.2 - 7.8\mu\text{m}$ in diameter.

Hab : on the ground

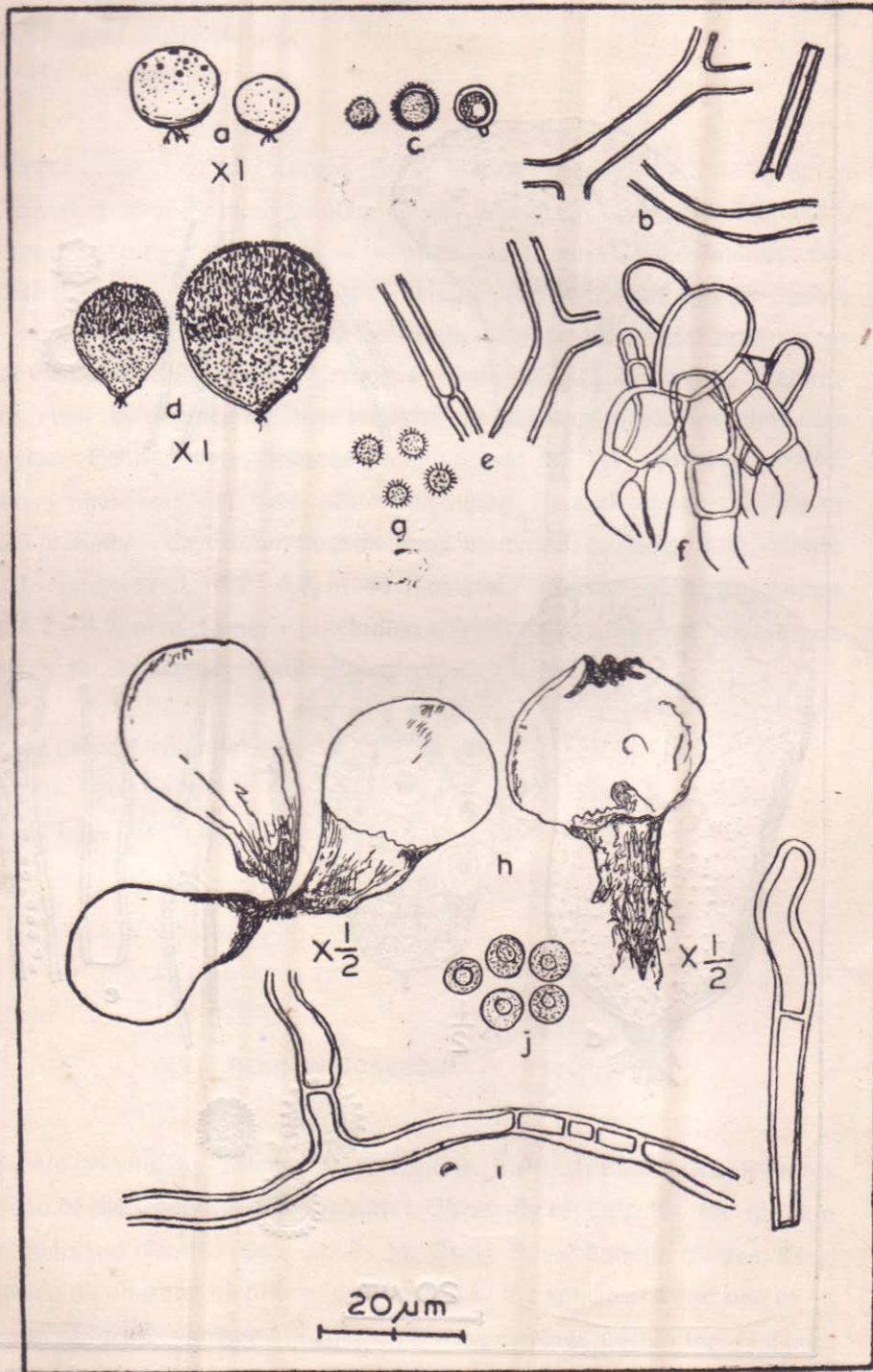
Dist : Calcutta, West Bengal

Collected by A. Roy and N. Samajpati

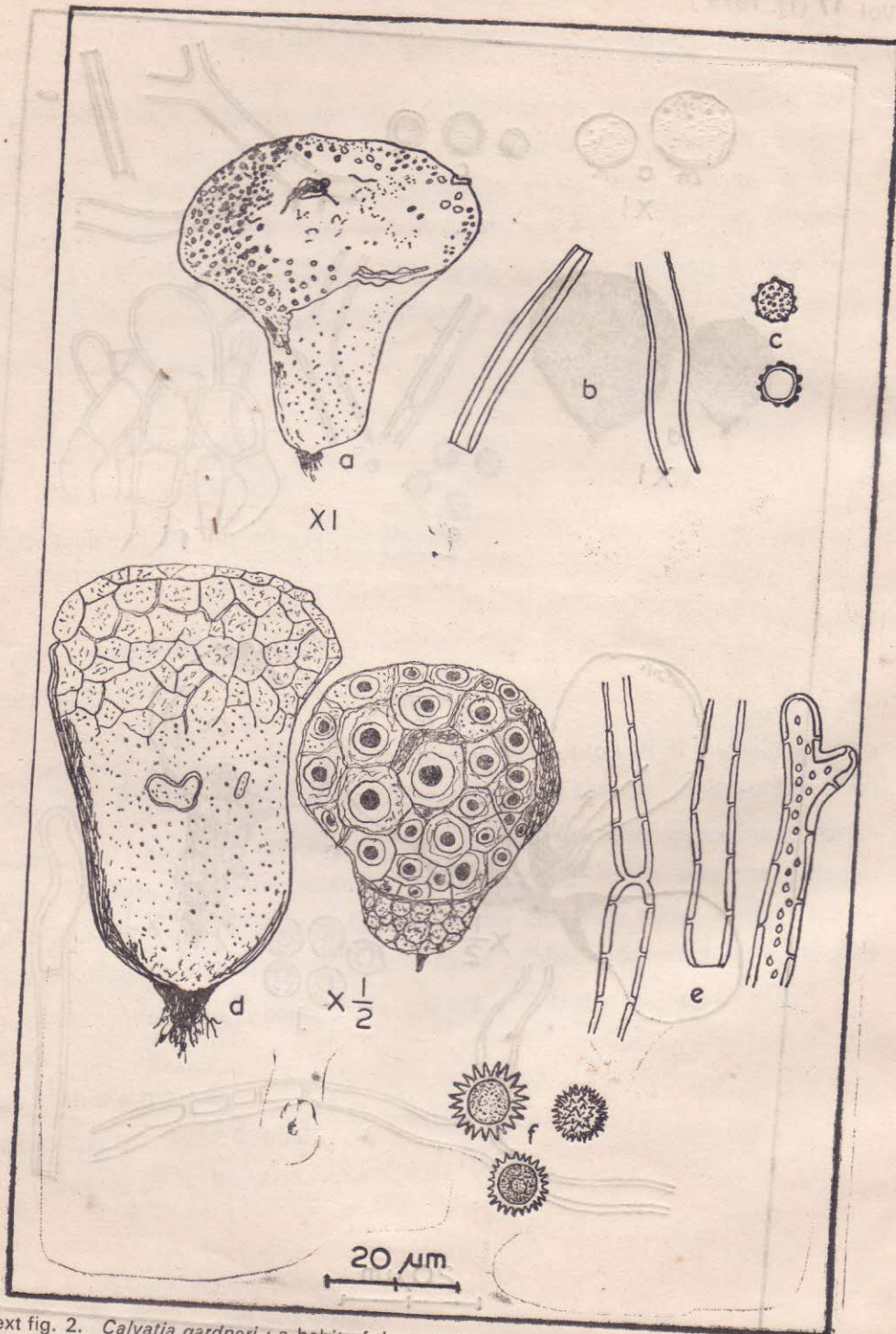
Calvatia cyathiformis (Bosc) Morg.

= *Lycoperdon cyathiformis* Bosc.

= *Bovista lilacina* Berk & Mont.



Text fig. 1. *Lycoperdon pusillum* : a-habit of the sporocarp, b-capillitium thread, c-spore ; *Lycoperdon polymorphum* : d-habit of the sporocarp ; e-capillitium threads ; f-glebal tissue, g-spore ; *Lycoperdon pyriforme* : h-habit of the sporocarp ; i-capillitium thread ; j-spore



Text fig. 2. *Calvatia gardneri* : a-habit of the sporocarp, b-capillitium thread, c-spore ;
Calvatia cyathiformis : d-habit of the sporocarp, e-capillitium threads,
 f-spore.

= *Calvatia novae-zelandiae* Lev.

(Text. fig. 2, d—f)

Sporocarp subglobose to pyriform, 5.1 — 9.2 cm in height; 6.5 — 20 cm in diameter, tapering abruptly to a crenulate sterile, whitish to cream colour base, attached below by a short rhizoids; *Exoperidium*—thin, continuous, smooth, floccose, often becoming areolate; with lower sterile creamish white spongy tissue. Mature *exoperidium* becomes darker in colour, breaks off into several small pieces along with the outer peridium; *Endoperidium*—thin, fragile, brown at maturity and scaling away by degrees together with the *exoperidium* to expose the dark purple interior. Dehiscence by irregular flaking away of the peridium. *Gleba*, homogeneous, olivaceous, at first white, changing through greyish purple to brown with maturity. *Capillitium* threads long, branched, septate, with minute pits, equal, interwoven, 4.2—4.7 μ m in diameter. *Spores* globose, spines numerous, 4.2—4.7 μ m in diameter (excluding spines) thick; epispores violaceous brown, shortly to moderately pedicellate; echinulus hyaline.

Hab : on the ground amongst grasses;

Dist : Calcutta, West Bengal

Collected by A. Roy and N. Samajpati.

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