

Note

New records of higher fungi from Israel

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Eighteen taxa of higher fungi (Boletales, Agaricales, Gasteromycetes and Ascomycetes) are reported as new to Israel. Brief descriptions are given of some rare taxa, based on the Israeli material.

Key Words—Agaricales; Hysterangiales; Lycoperdales; Pezizales.

Previous records of higher fungi in Israel have been given in Binyamini (1975, 1976a, 1976b, 1976c, 1984a, 1984b, 1986, 1989) and Binyamini and Wright (1986). Eighteen taxa new to Israel have been found recently, of which three belong to Ascomycetes, two to boletales, ten to Agaricales, and three to Gasteromycetes. These 18 species occur in Europe but have not been recorded from Israel and east Mediterranean regions. In Israel higher fungi occur in the rainy season. Generally, they begin to fruit in the middle to the end of November after sufficient rain.

The climate of Israel may be described as Mediterranean in the northern and central areas, particularly along the coastal plain and in the mountains, and increasingly more arid towards the east. There is no rain during March–April to November. The transitional seasons, spring and autumn, between the dry and wet, are very brief, unlike those of central and northern Europe.

All collections are located at Tel Aviv University (TAU) and Herbarium numbers of dried specimens are given in parentheses. Microscopic structures were observed on fresh material.

Ascomycetes

Pezizales

Piziza praetervisa Bres.

Ascospores ellipsoidal, $10\text{--}13 \times 5.5\text{--}8 \mu$, hyaline, covered by minute warts, with two oil drops.

Habitat. Mt. Carmel (Bet Oren S.) on burnt ground in woods under *Quercus* trees, 15.1.90 (90a55).

According to Dennis (1968) and Rifai (1968), this species typically grows on burnt ground and has a lilac-violet colour in the hymenium and finely warted spores. These characters are well represented in the Israeli material.

Scutellinia armatospora Denison

= *S. asperior* sensu Dennis

Apothecia cup-shaped then flattened, 2–8 mm in

diam, hymenium orange-red; outer surface and margin with dark brown setae. Asci clavate, $270\text{--}300 \times 20\text{--}24 \mu\text{m}$, eight-spored. Ascospores round, $16\text{--}18 \mu\text{m}$, hyaline, without drops, ornamented with conical spines up to $1 \mu\text{m}$ long. Paraphyses cylindrical, clavate at the tips and up to $10 \mu\text{m}$ broad. Setae dark brown, thick-walled, ending in a sharp point, $200\text{--}800 \mu\text{m}$ long, multiply septate.

Habitat. Mt. Carmel (Ha'arbaim wood), growing singly or in groups, on ground under *Quercus* trees, 30.3.92 (92a59).

According to Denison (1959) and Dennis (1968 as *S. asperior*), this species differs from *S. trechispora* in which the ascospores are ornamented with low warts in place of conical spines.

Eurotium herbariorum Link: Fr.

Ascocarp globose, 0.1–0.3 mm in diam, yellow, smooth without an ostiole. Asci subglobose, $10\text{--}17 \mu\text{m}$ across, thin-walled, eight-spored. Ascospores bi-convex, 4–7 μm , sometimes minutely ornamented, furrows, irregularly arranged.

Habitat. Sharon Plain (Hadera), on dead branches of *Eucalyptus*, 29.1.92 (92a76).

Our specimens coincide well with the description and figures of Dennis (1968).

Basidiomycetes

Boletales

Gyrodon lividus (Bull.: Fr.) Sacc.

Basidiospores broadly elliptical, $5\text{--}6.5 \times 3\text{--}5 \mu\text{m}$, smooth, yellowish. Basidia clavate, with 4(–2) sterigmata and basal clamp. Chielocystidia fusiform to clavate, $30\text{--}40 \times 5\text{--}7 \mu\text{m}$.

Habitat. Sharon Plain (Ramat Hasharon). Gregarious, on sandy soil, in woods. 31.10.92 (92.179).

Gyroporus cyanescens (Bull.: Fr.) Quél.

Basidiospores oblong-elliptical, $7\text{--}9 \times 3.5\text{--}4 \mu\text{m}$,

smooth, almost hyaline. Cheilo- and pleurocystidia fusiform, $36\text{--}40 \times 6\text{--}10 \mu\text{m}$, lightly incrustated apically. Habitat. Mt. Carmel. (Bet Oren S.). Growing solitary to gregarious, under *Quercus caliprinose*. 25.11.92. (92.181)

Our specimens agree well with the description and figure of Breitenbach and Kränzlin (1991).

Omphalina ericetorum (Pers.: Fr.) M. Lange
= *O. umbellifera* sensu J. E. Lange

Basidiospores elliptical, $6\text{--}8 \times 5\text{--}6 \mu\text{m}$, white. Habitat. Upper Galilee (Bar'am wood), on peaty ground with moss, in *Quercus* woods, 28.12.89 (89.417).

Our specimens coincide well with the descriptions and figures of Lange (1935-40) and Moser (1983).

Omphalina rustica (Fr.) Quél. Fig. 1

Basidiospores broadly ovate, $6.5\text{--}8 \times 4.5\text{--}5.5 \mu\text{m}$, smooth, white.

Habitat. Sharon Plain (Hadera, Iron wood.) among moss on sandy hill, in *Pinus* woods, 31.12.85 (85.356).

Tricholoma colossus (Fr.) Quél.

Pileus large, 8-20 cm, convex then plane, reddish pink, darker at the centre; margin whitish, incurved. Lamellae sinuate, wide, fragile, white, becoming pink. Stipe $5\text{--}10 \times 2\text{--}3 \text{cm}$, concolorous with the pileus, with red granules over the surface, apex white, base slightly bulbous. Flesh white then yellowish to reddish. Smell pleasant. Basidiospores elliptical-ovate, slightly thick walled, $8\text{--}11 \times 4\text{--}6 \mu\text{m}$.

Habitat. Upper Galilee (Bar'am wood), in mixed woods of *Pinus* and *Quercus*, 28.12.89 (89.429).

Our fungus accords well with the descriptions and figures of Dähncke and Dähncke (1984) and Moser (1983).

Tricholoma populinum J. E. Lange

Pileus large, 6-12 cm in diam, convex then plane, smooth, slightly viscid, brownish, slightly reddish at the centre. Lamellae adnate-sinuate, white, becoming greyish-brown-red. Stipe $4\text{--}6 \times 1.5\text{--}2 \text{cm}$, white, becoming brownish red. Flesh white; smell of flour. Basidiospores obovate, $4\text{--}6 \times 3\text{--}4 \mu\text{m}$, smooth.

Habitat. Sharon Plain (Ramat Hasharon), under *Casuarina* and *Populus* trees, in open grassy species, 10.12.86 (86.705), 15.12.86 (86.619).

Leucopaxillus paradoxus (Coast.-Dufour) Bours.

Pileus convex, then plane, 4-8 cm in diam, cream white to light ochre, slightly tomentose, becoming smooth, margin inrolled when young. Lamellae adnate-decurrent, white-cream, subdistant. Stipe $5\text{--}15 \times 3\text{--}5 \text{cm}$, narrowed at the base and subradicating, smooth or adpressedly scaly. Basidiospores elliptical, $5\text{--}8 \times 3.5\text{--}5 \mu\text{m}$, warty, amyloid; spore-print white.

Habitat. Judean Mt. It has been found only once under *Pinus halepensis*, 4.2.67 (67.100), Leg. M. Galun.

Lyophyllum fumosum (Pers.: Fr.) Orton Fig. 2
= *Tricholoma conglobatum* (Vitt.) Ricken

Basidiospores globose to subglobose, $5\text{--}6 \mu\text{m}$, hyaline, smooth. Basidia 4-spored, with basal clump.

Habitat. Mt. Menashe, in open woods near *Cupressus* trees, 23.1.92 (92.160); Sharon Plain (Netanya), under *Cupressus* trees, 13.1.92 (92.134).

This fungus coincides well with the descriptions and figures of Lange (1935-40) and Moser (1983).

Rhodocybe gemina (Fr.) Kuyper et Noordeloos
= *Rhodocybe truncata* sensu Singer; *Tricholoma geminum* sensu J. E. Lange (fide Noordeloos and Kuyper, 1987).

Pileus convex then plane, 4-10 cm in diam, minutely flocculose, ocher-flesh colour, margin incurved. Lamellae crowded, emarginate to subdecurrent, paler than the cap. Stipe $4\text{--}6 \times 1\text{--}1.5 \text{cm}$, white, slightly fibrillose-striate, granulate above. Flesh watery-white; smell faint, sweetish. Basidiospores broadly ovate, $4\text{--}7.5 \times 3.5\text{--}4.5 \mu\text{m}$; spore-print flesh colour.

Habitat. Sharon Plain, in small groups, in woods of *Pinus* and *Eucalyptus*. It has been found only once, 24.1.90 (90.193). Leg. Sh. Vigodni.

The flesh colour spore-print and broadly ovate spores are characteristic of our specimens.

Psathyrella ammophila (Durieu et Lév.) P. D. Orton
= *Psilocybe ammophila* (Durieu et Lév.) Gillet

Pileus convex, 1.5-2.5 cm in diam, clay-brownish, without striations. Lamellae dark brown, broad, somewhat adnate. Stipe $4\text{--}6 \times 6.5\text{--}7 \mu\text{m}$, brown. Cystidia bottle-shaped.

Habitat. Negev. (Ramon crater), on sandy soil and dunes, near Harout Hill, 15.2.92 (92.171), Leg. R. Gurevitz; Sharon Plain (Sirken), on sandy soil, 23.12.78 (78.452).

The deeply rooting stipe buried in sandy soil is characteristic and coincides with the descriptions and figures of Lange (1935-40) and Moser (1983). According to Kits van Waveren (1977), however, the stipe of this species is said to be deeply sunk in the sand but is not really rooting.

Hypoloma sublateritium (Fr.) Quél.

Basidiospores oblong-elliptical, $6\text{--}6.5 \times 3\text{--}4 \mu\text{m}$, smooth, purple-brown. Cystidia scattered, obclavate with apiculate apex, $32\text{--}36 \times 10\text{--}12 \mu\text{m}$.

Habitat. Sharon plain (Netanya S.). Caespitose (in large clusters), growing from the base of trees or stumps, in woods. 20.1.93 (93.187).

Our specimens are in good agreement with the macroscopical description and figure of Dähncke and Dähncke (1984).

Lactarius theiogalus (Bull.) Fr. Fig. 3

= *L. tabidus* sensu Konrad et Maublanc; *L. mitissimus* sensu Ricken

Habitat. Mt. Carmel (Bet Oren N.), in groups, close or attached the trunk of *Quercus* trees, 10.1.82 (82.145),

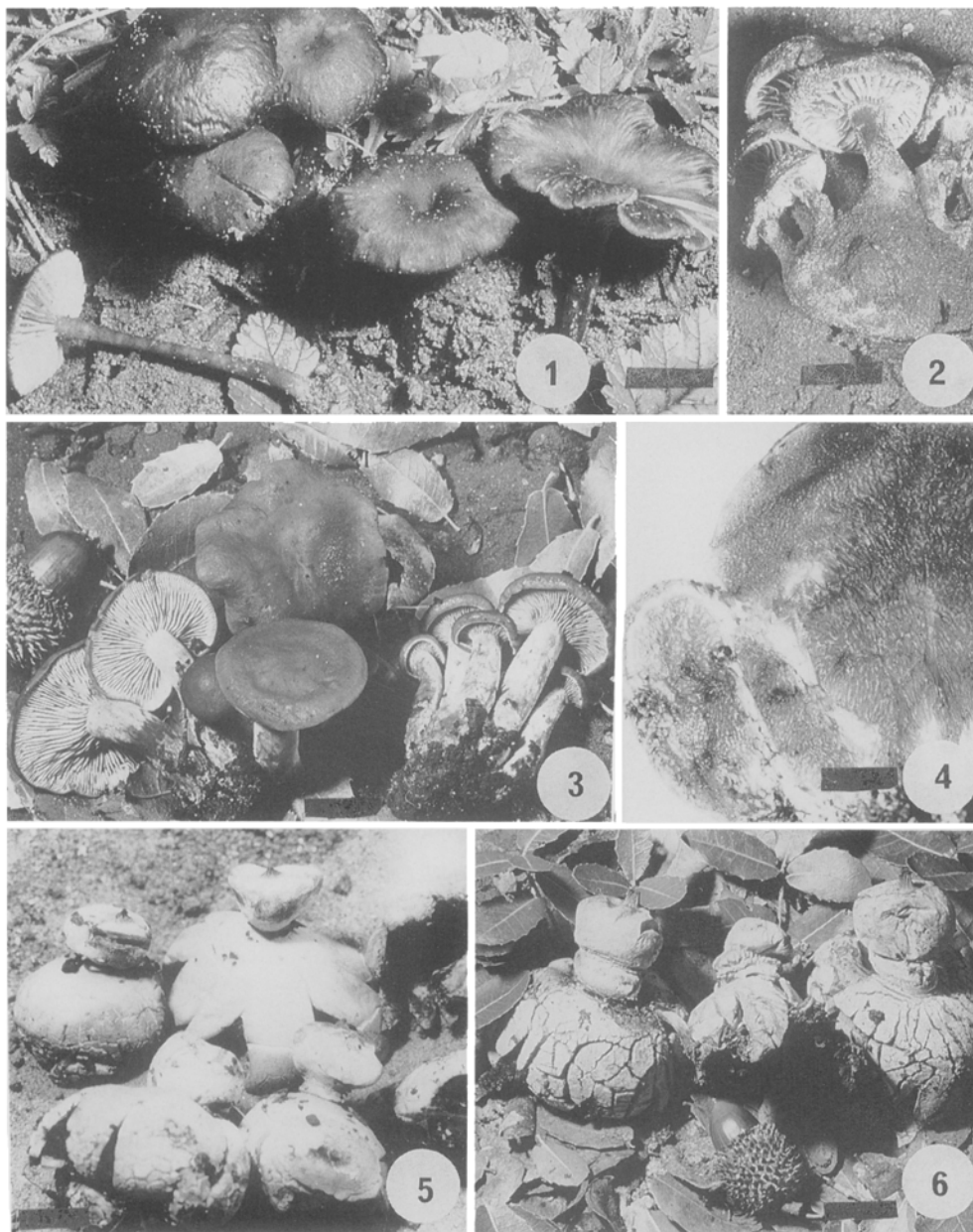


Fig. 1-6. 1. *Omphalina rustica*. Scale: 0.5 mm. 2. *Lyophyllum fumosum*. Scale: 0.3 mm. 3. *Lactarius theiogalus*. Scale: 0.3 mm. 4. *Hysterangium coriaceum*. Scale: 0.2 mm. 5. *Geastrum nanum*. Scale: 1 cm. 6. *Geastrum pectinatum*. Scale: 10.5 cm.

17.1.82 (82.190, 82.409, 79.273, 86.159).

This species is well known in the European literature. Our specimens are somewhat anomalous in having watery unchanging (not yellowing) latex.

Gasteromycetes

Hysterangiales

Hysterangium coriaceum Hesse

Fig. 4

Basidiospores $10-13 \times 3.5-5 \mu\text{m}$, fusiform, narrow toward distal ends, smooth, hyaline. Basidia long cylindrical, $28-35 \times 5-8 \mu\text{m}$.

Habitat. Sharon Plain (Rosh Ha'ayin), on humus soil, soli-

tary or in groups, under *Eucalyptus* trees, 5.1.90 (90g106).

Our specimens coincide well with the descriptions and figures of Pilat (1958) and Lange and Hora (1967). According to Demoulin (1975) this genus belongs to the order Hysterangiales.

Lycoperdales

Geastrum nanum Pers.

Fig. 5

= *Geaster schmidelii* Vitt.

Basidiospores spherical, $4-6.1 \mu\text{m}$, warty, light brownish. Capillitium threads hyaline to light brownish, $3-6.5 \mu\text{m}$ broad, thick walled.

Habitat. Sharon Plain (Rosh Ha'ayin), on sandy soil, near *Eucalyptus* trees, 5.1.90 (90g104), 9.1.90 (90g103).

The spores of this species are warty and small. This species is recognized by the sulcate peristome, and the distinct apophysis at the base. According to Coker and Couch (1928) the spores are described as small as up to 3.7–4.4 μm , but Dissing and Lange (1961) report somewhat larger spores, 5.2–6.2 μm . Sand dunes is its typical habitat in Israel.

Geastrum pectinatum Pers.

Basidiospores 5.3–7 μm in diam, brownish, with large blunt warts. Capillitium threads 7–10 μm wide, brownish.

Habitat. Upper Galilee (Bar'am wood), under *Quercus* trees, 25.1.84 (84g103), 21.12.83 (83g115), 25.1.84 (84g102).

Our specimens agree well with the descriptions and figures of Pilát (1958), Dissing and Lange (1961), Coker and Couch (1928).

Literature cited

- Binyamini, N. 1975. "Fleshy fungi of Israel (Agaricales)," Hakibbutz Hameuchad Publishing House, Israel. 227p.
- Binyamini, N. 1976a. Fleshy fungi of North and Central Israel II. *Israel J. Bot.* **25**: 62–78.
- Binyamini, N. 1976b. Fleshy fungi of North and Central Israel III. *Nova Hedwigia* **27**: 861–876.
- Binyamini, N. 1976c. Rare and interesting records of Israeli agaric-flora. *Nova Hedwigia* **28**: 759–770.
- Binyamini, N. 1984a. New records of Geastraceae from Israel. *Mycologia Helvetica* **1**: 169–175.
- Binyamini, N. 1984b. "Larger fungi of Israel. Ascomycotina, Basidiomycotina (Aphylophorales, Auriculariales, Tremellales and Gasteromycetes)," Ramot Pub. Israel. 175p.
- Binyamini, N. 1986. Pezizales and lignicolous Ascomycotina fungi from Israel, I. *Trans. Mycol. Soc. Japan* **27**: 441–450.
- Binyamini, N. 1989. Rare and interesting records of Israel agaric-flora, IV. *Opera Bot.* **100**: 23–27.
- Binyamini, N. and Wright, J. E. 1986. New record of *Tulostoma* (Gasteromycetes) from Israel. *Nova Hedwigia* **43**: 453–457.
- Breitenbach, J. and Kränzlin, f. 1991. "Fungi of Switzerland, Vol. 3. Boletes and Agarics 1st pt.," (English 1st ed.), Verlag Mykologia, Lucerne. 361p.
- Coker, W. C. and Couch, J. N. 1928 1st ed. "The Gasteromycetes of the Eastern United States and Canada," Univ. North Carolina Press, Chapel Hill. 201p. (Reprint, 1969, Lehre).
- Dähncke, R. M. and Dähncke, S. M. 1984. "700 Pilze in Farbfotos," AT Verlag, Aarau. 686p.
- Demoulin, V. 1975. "Les Gasteromycetes. Introduction a l'etude des Gasteromycetes de Belgique," Les Naturalistes Belges, Bruxells. 59p.
- Dennis, R. W. G. 1968. "British Ascomycetes," Cramer Lehre. 455p.
- Denison, W. C. 1959. Some species of the genus *Scutellinia*. *Mycologia* **51**: 605–635.
- Dissing, H. and Lange, M. 1961. The genus *Geastrum* in Denmark. *Bot. Tidsskr.* **57**: 1–27.
- Dissing, H. and Lange, M. 1962. Additional notes on the genus *Geastrum* in Denmark. *Bot. Tidsskr.* **58**: 64–67.
- Kits van Waveren, E. 1977. Notes on the genus *Psathyrella*. The sections *Ammophilae*, *Bipellis* and *Subatrata*. *Persoonia* **9**: 199–231.
- Lange, J. E. 1935–40. "Flora agaricina danica. I–V," Recato, Copenhagen.
- Lange, M. and Hora, F. B. 1967. "Collins guide to mushrooms and toadstools," Collins, St. James's Place, London. 257p.
- Moser, M. 1983. "Keys to agarics and boleti (Polyporales, Boletales, Agaricales, Russulales)," Phillips, R., London. 535p.
- Noordeloos, M. E. and Kuyper, T. W. 1987. Notulae ad floram agaricinam Neerlandicam XIV. A nomenclatural note on *Rhodocybe truncata*. *Persoonia* **13**: 379–380.
- Pilát, A. 1958. Flora CSR. B-1, "Gasteromycetes," Ceskoslovenske Akademie Ved, Praha. 862p.
- Rifai, M. A. 1968. "The Australiasian Pezizales in the Herbarium of the Royal Botanic Gardens Kew," N. V. Noord-Hollandsche Uitgevers Maatschappij, Amsterdam. 295p.