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Some New North American Species of *Tomentella*

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In a recent monograph on *Tomentella*, Larsen (1974) indicated that many species in the genus appear to have a world-wide distribution, but others are apparently indigenous to certain ecological areas or zones on the individual continents. Accumulated evidence from field work and intensive studies of material from widely distributed stations suggest that within groups of related species, now defined taxonomically by sections (Larsen, 1974), there are those taxa which are now being recognized that appear to be adapted and/or restricted to well defined geographical areas. There are excellent examples of *Tomentellas* with limited distributions, e. g., *T. atrorubra* (Pk.) Bourd. & Galz., *T. olivascens* (Berk. & Curt.) Bourd. & Galz., *T. subalpina* M. J. Larsen, etc.

Proposed herein are four previously undescribed taxa. These apparently represent very local and indigenous populations of tomentelloid fungi on the North American continent.

Pieces of basidiocarps were mounted in 10 % KOH, stained with 1 % aqueous phloxine solution and pressed to desired thinness. It has been found that *Tomentella* spores stain readily with phloxine if, initially, sections are exposed 5-10 min to 10 % KOH and then stained with a 5 % aqueous phloxine solution. Excess stain is then removed by adding additional small volumes of 10 % KOH. Photomicrographs of spores stained in this manner were taken with the aid of a Leitz Orthomat camera utilizing a green filter with maximum absorbance at 550 nm. Numerical surface color expressions of fertile areas of basidiocarps are those of the Munsell system (1929-1942). All specimens are deposited at the Herbarium of the Center for Forest Mycology Research (CFMR).

**Studies on Higher Fungi. A Collection of Papers Dedicated to
Dr. Alexander H. Smith on the Occasion of his Seventieth
Birthday. Edited by H.E. BIGELOW and H.D. THIERS.**

Tomentella angulospora Larsen, spec. nov

Plate 40, Figs. 1, 2

Basidiocarpis annuis, effusis; area fecunda atrogrisea cum suffusis olivaceis; hymeniis superficiebus laevibus vel minutis granulosis; hyphis subiculis 2.5-3.5 μ diam, fibulatis; basidiis 30-35 x 6-7 μ ; basidiosporis 6-7 μ latis, angularibus et lobatis, echinulatis.

Holotypus: U. S. A., NEW YORK: Schroon Lake, on *Acer* sp., 3 July 1964, M. J. Larsen 840 (CFMR).

Basidiocarps annual, effused, up to 0.2 mm thick, mucedinoid, adherent; fertile areas discontinuous, *dull gray with a faint olivaceous tint (near 5.0 Y 5/2 and 5.0 Y 4/2)*; hymenial surface *smooth to minutely granulate*; subiculum not determinable; sterile margin absent.

Hyphal system monomitic. SUBICULAR HYPHAE (Plate 40, Fig. 1) scant and difficult to observe, 2-3 μ diam, clamped, pale yellowish brown, thin-walled; SUBHYMENIAL HYPHAE 2.5-3.5 μ diam, clamped, hyaline; BASIDIA (Plate 40, Fig. 1) 30-35 x 6-7 μ , clamped at the base, often with transverse septa, clavate, 4-sterigmate with the sterigmata up to 7 μ long, with contents often appearing dull reddish brown when mounted in H₂O and ocher in KOH; BASIDIOSPORES (Plate 40, Fig. 2) 6-7 μ across, *angular to lobed*, echinulate, pale brown.

Additional specimens examined: NEW YORK: Schroon Lake, on *Acer* sp., 3 Aug 1964, M. J. Larsen 829 and 842 (CFMR).

Remarks -- *Tomentella angulospora* is a typical representative of the section *Bolares* (Bourd. & Galz.) Donk, and is specifically diagnosed by spore shape and size. This species appears to be allied to *T. scobinella* G. H. Cunn., but in the latter subicular hyphae are thick-walled, 4-6 μ diam, and basidia appear as fusiform to subulate structures when immature.

Tomentella carbonaria Larsen, spec. nov.

Plate 41, Figs. 3, 4

Basidiocarpis annuis, effusis; area fecunda sordidis brunneis; margine pallidis vel subalbidis; hyphis subiculis 4.5-6.5 μ , fibulatis; basidiis 40-60 x 7-10 μ ; basidiosporis 8.5-10.5 μ latis, plerumque irregularibus, saepe lobatis, echinulatis.

Holotypus: U. S. A., NEW MEXICO: Bandelier National Monument, on charred *Pinus contorta*, 20 Aug 1968, M. J. Larsen 2815 (CFMR).

Basidiocarps annual, effused, up to 0.4 mm thick, mucedinoid, adherent; fertile area continuous, *dull buff brown (near 10.0 YR 5/4 and 10.0 YR 4/4)*; hymenial surface smooth; subiculum paler than the fertile area; sterile margin narrow, *much paler than the fertile area*, almost white, farinaceous to pruinose.

Hyphal system monomitic. SUBICULAR HYPHAE (Plate 41, Fig. 3) 4.5-6.5 μ , clamped, hyaline, thick-walled, often appearing closely and compactly arranged; SUBHYMENIAL HYPHAE 3-4.5 μ diam, clamped, hyaline, thin-walled; BASIDIA (Plate 41, Fig. 3) 40-60 x 7-10 μ , clamped at the base, clavate, 4-sterigmate, with sterigmata up to 10 μ ; BASIDIOSPORES (Plate 41, Fig. 4) 8.5-10.5 μ across, *normally irregular, frequently appearing somewhat lobed and elongated along one axis*, echinulate, brown.

Additional specimens examined: NEW MEXICO: Bandelier National Monument, on charred *Pinus contorta*, 20 Aug 1968, M. J. Larsen 2817 and 2818a (CFMR).

Remarks-- *Tomentella carbonaria* fits readily into the section *Brunneolae* (Bourd. & Galz.) Donk. The species is separated from others in the section by the nature of the subicular hyphae and size and shape of the spores. *T. carbonaria* appears to be allied to *T. sublilacina* (Ell. & Holw.) Wakef.

***Tomentella fraseri* Larsen, spec. nov.**

Plate 42, Figs. 5, 6

Basidiocarpis annuis, effusis; area fecunda pallidobrunnea vel atrobunnea; hyphis subiculis 2.5-3.5(-4) μ diam, fibulatis; basidiis 40-60 x 6-7.5 μ , plerumque distentis basi; basidiosporis 5-6.5(-7) μ latis, globosis vel subglobosis, echinulatis.

Holotypus: CANADA, ALBERTA: west of Jasper, Jasper National Park, Fraser River drainage, on *Populus* sp., 16 Aug 1970, M. J. Larsen 4160 (CFMR).

Basidiocarps annual, effused, up to 0.2 mm thick, mucedinoid, adherent; fertile areas finally becoming continuous, *buff brown to dark brown (near 5.0 YR 4/4)*; hymenial surface smooth; subiculum not determinable; sterile margin pruinose, paler than the fertile areas.

Hyphal system monomitic. SUBICULAR HYPHAE (Plate 42, Fig. 5) 2.5-3.5(-4) μ diam, clamped, pale brown to dull yellowish brown with some wall thickening apparent; SUBHYMENIAL Hyphae 2.5-3.5 (-4) μ diam, clamped, hyaline, thin-walled;

BASIDIA (Plate 42, Fig. 5) 40-60 x 6-7.5 μ , clamped at the base, usually clavate, but *frequently appearing distended in the basal part*, 4-sterigmate, with sterigmata up to 2 μ long, basidial contents often darkening in KOH and appearing dull ocher; BASIDIOSPORES (Plate 42, fig. 6) 5-6.5(-7) μ across, *globose to subglobose*, echinulate, medium brown.

Additional specimens examined: ALBERTA: west of Jasper, Jasper National Park, Fraser River drainage, on *Populus* sp., 16 Aug 1970, M. J. Larsen 4170 (CFMR).

Remarks-- Though *T. fraseri* is here placed in the *Brunneolae*, it is not considered to be a typical member of that section as there are several characters which indicate an alliance with *T. terrestris* (Berk. & Br.) M. J. Larsen of the section *Macrobasidii* M. J. Larsen, notably the basally distended basidia and the rather small globose to subglobose basidiospores.

Tomentella kootenaiensis Larsen, spec. nov.

Plate 43, Figs. 7, 8

Basidiocarpis annuis, effusus; area fecunda griseobrunnea; hyphis subculis 4-7 μ diam, fibulatis, plerumque irregularibus et inflatis, usque 9 μ diam; basidiis 40-60 x 6-7(-8) μ ; basidiosporis 8-11 μ latis, globosis vel inaequaliteris globosis, echinulatis.

Holotypus: CANADA, BRITISH COLUMBIA: Kootenay National Park, Sinclair Creek, on *Populus* sp., 4 Sept 1972, M. J. Larsen 4452 (CFMR).

Basidiocarps annual, effused, up to 0.25 mm thick, mucedinoid, adherent; fertile area continuous, *dull grayish brown (near 2.5 Y 4/2)*; hymenial surface smooth; subiculum thin and not easily discernible, concolorous with the fertile area; sterile margin farinaceous to pruinose.

SUBICULAR HYPHAE (Plate 43, Fig. 7) noticeably thick-walled, 4-7 μ diam, clamped, *often irregular and then with swollen and torose segments up to 9 μ diam*, pale yellowish brown; SUBHYMENIAL HYPHAE 3-5 μ diam, clamped, pale yellow to hyaline; BASIDIA (Plate 43, Fig. 7) 40-60 x 6-7(-8) μ , clamped at the base, clavate, 4-sterigmate, with sterigmata up to 6 μ long; BASIDIOSPORES (Plate 43, Fig. 8) 8-11 μ across, *globose to less frequently irregularly globose sometimes flattened adaxially*, echinulate, pale brown.

Additional specimens examined: ALBERTA: Banff National Park, Nigel Pass, on coniferous wood, 15 Aug 1970, M.J. Larsen 4118 (CFMR); BRITISH COLUMBIA: Kootenay National Park, on hardwood, 4 Sept 1970, M. J. Larsen 4416 (CFMR).

Remarks--*Tomentella kootenaiensis* is also a member of the section *Brunneolae*. In form it is similar to *T. sublilacina* but is readily separated from that species by the presence of globose to irregularly globose basidiospores, while the spores of *T. sublilacina* are irregular in outline to strongly lobed and are usually elongated along one axis.

LITERATURE CITED

- LARSEN, M. J. (1974) - A contribution to the taxonomy of the genus *Tomentella*. Mycologia Memoirs 4 (in press)
- MUNSELL BOOK OF COLOR. (1929-1942) - Munsell Color Co., Inc., Baltimore, Maryland.

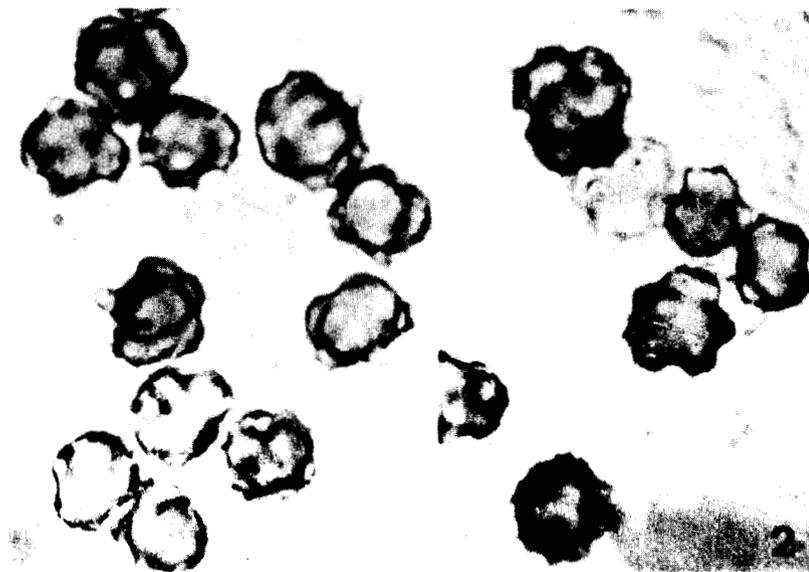
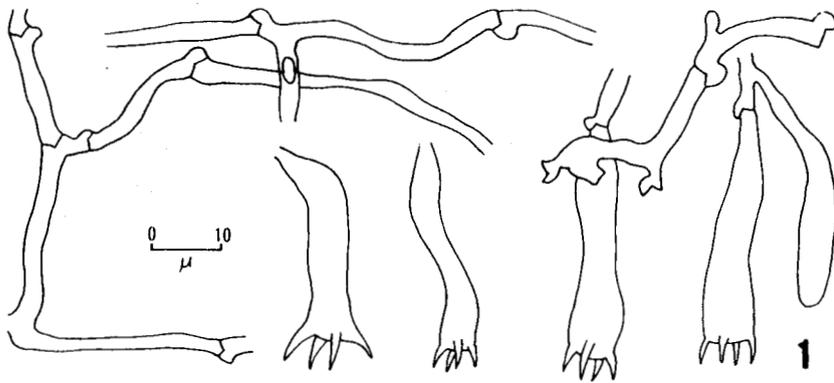


Plate 40 (Larsen)

- Fig. 1. *Tomentella angulospora*. Basidia and subicular hyphae from holotype.
- Fig. 2. Photomicrographs of basidiospores of *Tomentella angulospora* from holotype. Scale 2 mm = 1 μ

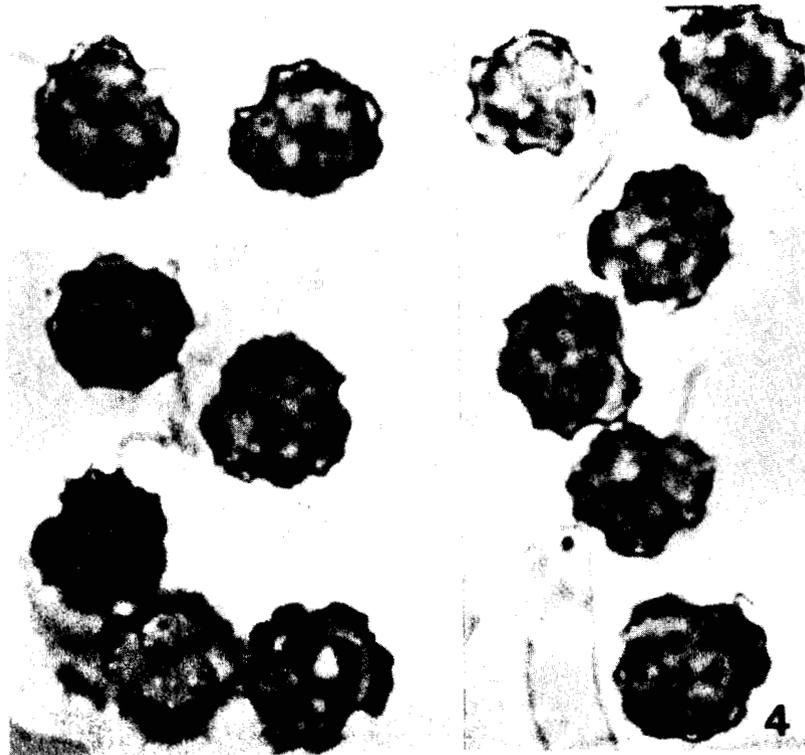
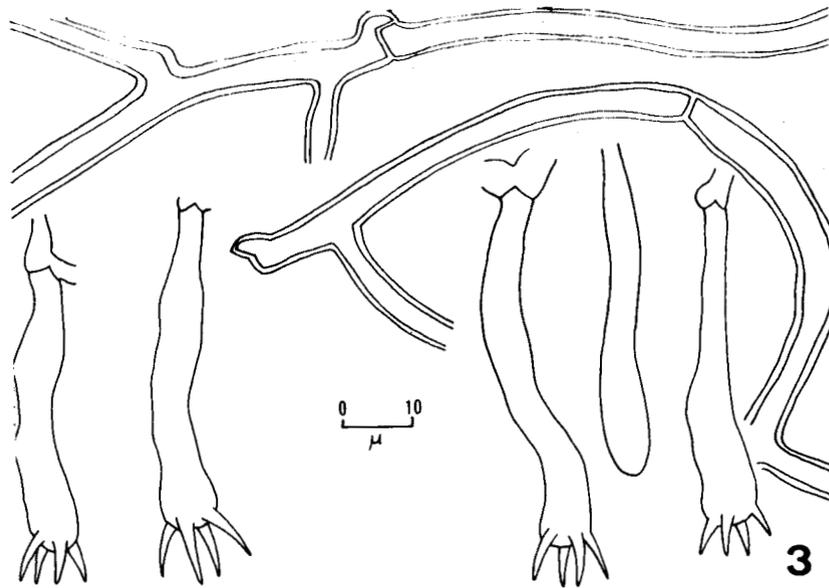


Plate 41 (Larsen)

- Fig. 3. *Tomentella carbonaria*. Basidia and subicular hyphae from holotype.
- Fig. 4. Photomicrographs of basidiospores of *Tomentella carbonaria* from holotype. Scale 2 mm = 1 μ

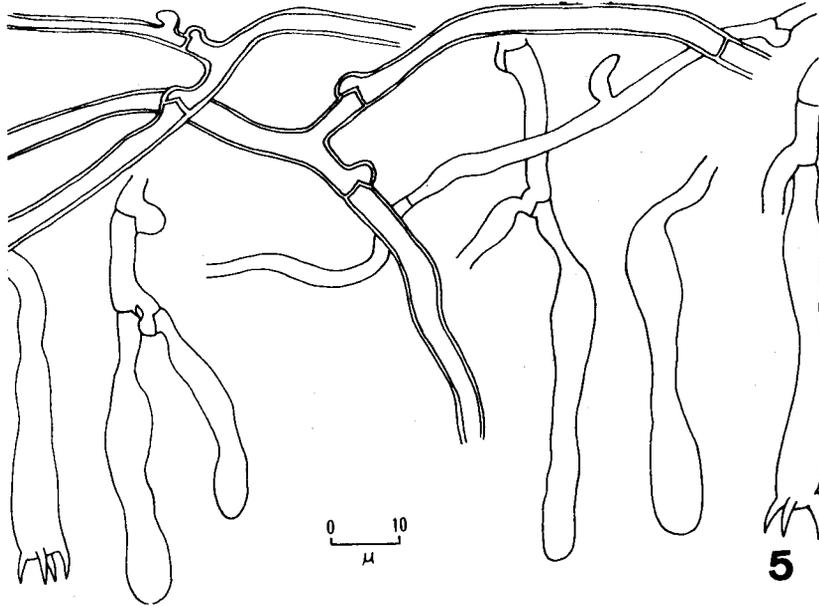


Plate 42 (Larsen)

- Fig. 5. *Tomentella fraseri*. Basidia and subicular hyphae from holotype.
Fig. 6. Photomicrographs of basidiospores of *Tomentella fraseri* from holotype. Scale 2 mm = 1 μ

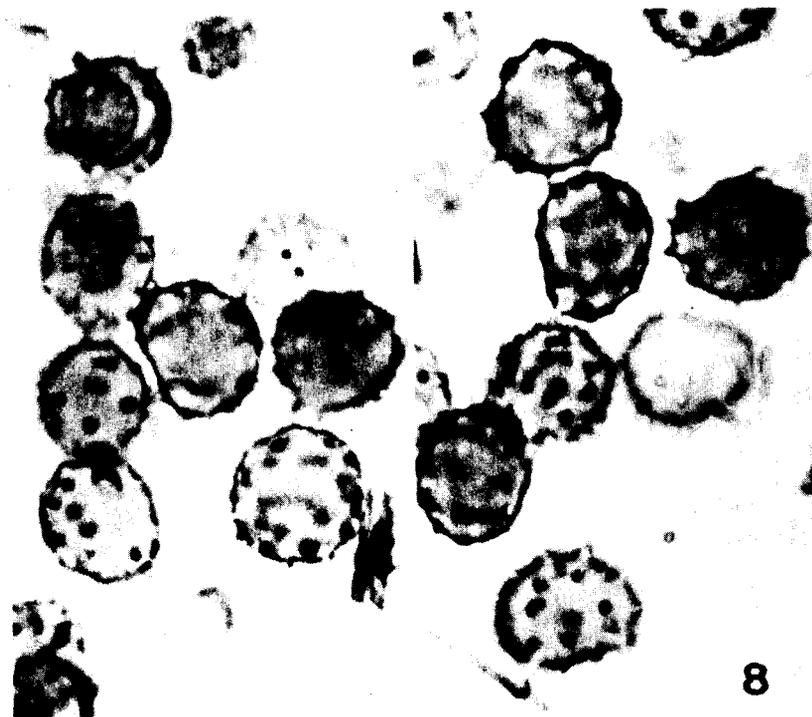
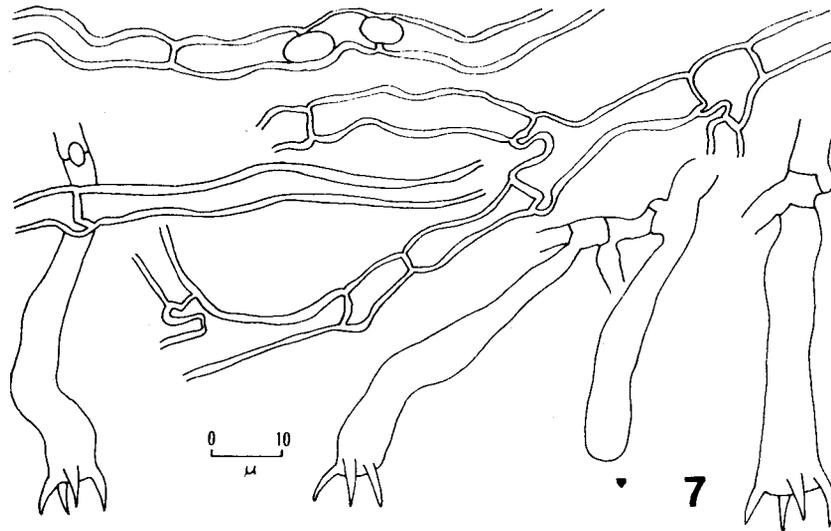


Plate 43 (Larsen)

Fig. 7. *Tomentella kootenaiensis*. Basidia and subicular hyphae from holotype.

Fig. 8. Photomicrographs of basidiospores of *Tomentella kootenaiensis* from holotype. Scale 2 mm = 1 μ