Hygrocybe jackmanii
Fungal Planet description sheets

Fungal Planet 389 – 1 December 2015

Hygrocybejackmanii Lebeuf, Thorn, Boertm., & Voitk, sp. nov.

Etymology. Name is a tribute to Captain William Jackman, who swam back and forth from shore 27 times to save 27 persons from a storm-grounded ship. Hygrocybe jackmanii fruits during the same stormy early October on the same Labrador shores where Jackman’s heroic feat took place.

Classification — Hygrophoraceae, Agaricales, Agaricomycetes.

Macroscopic: Pileus 10–40 mm diam, convex, decurved margin, plane with age, centre plane to depressed, margin slightly crenulate; radially adpressed fibrillose approaching squamulo in the centre; opaque, only edge of margin slightly translucent; orange-red, central squamules brown-grey, margin fringed with yellow fibrils. Lamellae: distant to moderately spaced, up to 3 mm wide; sinuous, adnate; yellow, turning orange with maturity; lamellulae 0–3. Stipe: 12–45 × 3–6 mm; even; smooth with sparse yellow flocculation at apex; ringless; solid to pithy; apex orange-yellow, lighter toward base, no staining; usually half-buried in sand. Context: yellow, smell nonspecific; taste nonspecific. Sporeprint white. Entire fruitbody slightly waxy to sticky.

Microscopic: Spores (type collection, 3 sporocarps, n = 96) (10.4–)11.8–15.1(–18) × (3.6–)4.2–5.5(–6.2) μm (mean = 13.5 × 4.8), Q = (2.1–)2.5–3.1(–3.5) (mean = 2.8); evenly cylindrical, at times slightly constricted with concave side and occasionally distally swollen; walls smooth, thin, inamyloid; contents amorphous. Basidia 51–65 × 7–9 μm, 4-spored, basidioles numerous, some segmented with short basal cells. Cystidia none seen. Clamp-connections present in all tissues, with medallion-clamps on some basidia and basidioles. Lamellar trama subregular, of non-inflated cells with perpendicular cross walls, 55–172 × 5–8 μm. Pilepellis a trichoderm in young fruitbodies, in older a cutis, end cells 28–96 × 7–10 μm, some with grey-brown content.

Habitat — In groups in shifting sand adjacent to heath or vascular plants, but not among them; of nearby moss, dune grass, Alnus viridis ssp. crispa, and Empetrum nigrum nearby. E. nigrum seems the most consistent; fruits together with Alpova cinnamomea and Sabuloglossum arenarium.

Distribution — Currently only known from the type location. Phylogeny — The ITS sequence of the holotype collection (amplified with primers ITS8-F and ITS6-R) was heterozygotic, with one haplotype having two insertions totalling 3 bases in ITS1 plus a single heterozygous site (C/T) early in ITS2. In contrast, the sequence of our material of H. andersonii lacked indels but had two separate C/T heterozygosties in the 5.8S and ITS2 regions. Neighbour-joining and maximum parsimony analyses placed both haplotypes of H. jackmanii as sister to the two available sequences of H. andersonii, but differing sufficiently (12.7 %) to consider H. jackmanii as a separate species. Both species were placed in subg. Pseudo hygrocybe, sect. Firmae, in a clade with H. miniata. However, sect. Cocccineae and its subset, Squamuloseae were not resolved as monophyletic by these ITS data, so a conclusive placement of H. andersonii and H. jackmanii awaits further sequence data.

Typus. CANADA. Forteau, Labrador, Newfoundland and Labrador, in littoral sand dunes, 2 Oct. 2011. A. Voitk (holotype DAOM S74868, ITS sequence GenBank KT207630 (haplotype A) and KT207631 (haplotype B), alignment in TreeBASE S17881; MycoBank MB8112924; isotypes Renée Lebeuf HRL1060, UWO-F1, David Boertmann 11.10.02 (av 15).

Notes — Long, cylindrical spores set Hygrocybe jackmanii apart from all other species of Hygrocybe with dark squamules on the disc, except the recently described H. andersonii. The latter is a southern species growing along the US Gulf Coast with Ceratiola ericoides. That plant is not known north of southern South Carolina. In contrast, H. jackmanii is a northern fungus, seemingly associated with Empetrum nigrum, an ericaceous inhabitant of northern sand dunes. Phylogeny has shown these two fungal species to be distinct. Segmented basidioles are an unusual character found in sect. Firmae. For an additional description of H. jackmanii, see Lebeuf et al. (2016).

Habitat:—Ephemeral dunes of sand and dune grass, Alnus viridis ssp. crispa, and Empetrum nigrum nearby. E. nigrum seems the most consistent; fruits together with Alpova cinnamomea and Sabuloglossum arenarium.

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A Muscle alignment of 50 Hygrocybe sequences selected from GenBank based on Lodge et al. (2014), with Hygroaster nodulisporus and Hygroaster albellus as outgroups, was analysed in PAUP v. 4.0b10 using both maximum parsimony and BioNJ algorithms, then pared down to the monophyletic group containing members of sections Firmae and Cocccineae. The single most parsimonious tree is shown; numbers at nodes represent bootstrap support from a bootstrapped heuristic maximum parsimony analysis with 100 random additions of taxa (first number) and from BioNJ (second number).

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