
Hemileucoglossum pusillum

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Hemileucoglossum pusillum V. Kučera, Fedosova & Arauzo, *sp. nov.*

Etymology. Name reflects the small size of ascocarps, resulting in the fungus being inconspicuous and hard to detect.

Classification — *Geoglossaceae*, *Geoglossales*, *Geoglossomycetes*.

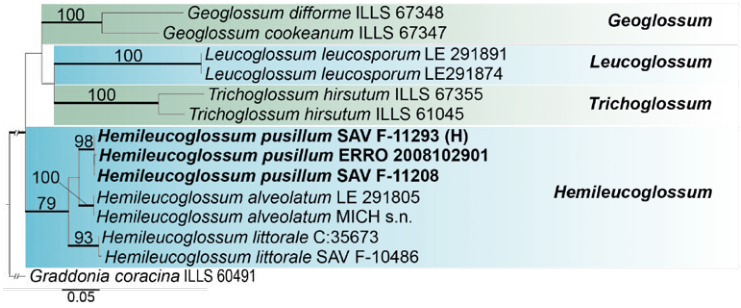
Ascocarps scattered to gregarious, clavate, stipitate, 0.8–3.5 cm tall, 0.1–0.5 cm wide, black throughout. *Ascigenous part* clavate, broadly clavate or compressed, c. 1/4–1/2 of the total ascocarp length, 0.2–1.1 cm long, black, concolorous with the stipe, compressed or oval in cross section, sharply delimited from the stipe, smooth both in fresh and dry conditions. *Stipe* terete, cylindrical, oval in cross section, slender to robust, conspicuously hairy with dark brown setose hairs in tufts in upper part of the stipe when fresh, rough to squamulose when dry. *Asci* clavate to broadly clavate, (135–)141.5–181.5(–187) × (14–)15.5–23.5(–25) µm (measured in water), Q = (6.3–)6.8–8.7(–9.5), 8-spored, with euamyloid apical ring and inamyloid wall in MLZ and IKI. *Ascospores* elongate-clavate, subfusiform to fusiform, narrowed to the base, sometimes slightly curved, (41–)50–76.5(–82) × (5–)5.5–7.5(–8) µm (in water), Q = (8.5–)12.6(–15.2), hyaline, finally in some asci becoming brown, predominantly 3–4-septate, rarely with 0–5(–6) septa. *Ascoconidia* not observed. *Paraphyses* cylindrical, sparsely septate, 2–3 µm diam, straight to slightly curved and inflated at the apex, hyaline at basal part to pale brown at the apex, embedded in a dense brown amorphous matter, extending beyond the asci. *Apical cells* usually inflated and constricted or pyriform, sometimes proliferating (12.5–)18.5–46(–54) × (4.5–)6–8.5(–11) µm. *Stipe surface* squamulose of protruding paraphysal elements forming scales and with tufts of dark brown setose septate hairs (85–)90–120(–144) µm long, straight, moderately septate, basal cell usually inflated, (7–)10–13(–17.5) µm, medial part (4.5–)5.5–7(–9.5) µm and apical part (2–)3 µm with rounded apex. For supplementary description and iconography see *H. littorale* in Arauzo & Iglesias (2014).

Habit, Habitat & Distribution — In small groups on soil in the vicinity of a mineral spring of the fen, in peat-bog and sandy bank of the river. The species is known only from five localities, two in Slovakia and three in Spain (Arauzo & Iglesias 2014).

Typus. Slovakia, Veľká Fatra Mts, calcareous fen Močiar, Stankovany, c. 1.7 km NW from the village centre, N49°09'14.53" E19°09'6.39", alt. 440 m, fen with mineral spring, in association of *Triglochin palustre*, *Trichophorum pumilum*, *Centaurium littorale* subsp. *uliginosum*, on gravel soil, 11 Nov. 2016, *V. Kučera* (holotype SAV F-11293, ITS and LSU sequences GenBank MF353090 and MF353093, MycoBank MB821845).

Additional specimens examined. Slovakia, Veľká Fatra Mts, Rojkov, c. 500 m NWW from the centre, Rojkovské rašelinisko National Reserve, N49°08'54.7" E19°09'17.4", alt. 438 m, peat bog, on soil, 8 Oct. 2014, *V. Kučera*, SAV F-11208, ITS and LSU sequences GenBank MF353088 and MF353091. – Spain, Bizkaia, Iurreta, N43°11'18.7" W02°37'57.9", alt. 135 m, sandy shore of the river Zaldai with *Carex pendula*, *Chamaecyparis lawsoniana*, *Fraxinus excelsior*, *Alnus glutinosa*, 29 Oct. 2008, *S. Arauzo*, ERRO-2008102901, ITS sequence GenBank KP144108 (as *H. littorale* in Arauzo & Iglesias 2014).

Notes — Arauzo & Iglesias (2014) introduced a new genus *Hemileucoglossum* for four species of *Geoglossum* with setose hairs on the stipe, predominantly hyaline mature ascospores and paraphyses agglutinated by a dense brown amorphous material. The type species of the genus *H. littorale* occur in localities with *Littorela uniflora* plants (Kers & Carlsson 1996) and differs from *H. pusillum* in shorter and narrower asci (120–145 × 18–20 µm) and spores (50–60 × 4–6 µm) and presence of long brown branched hyphae (30–80 × 2–5 µm) on the stipe surface. *Hemileucoglossum alveolatum* has more septate (up to 15) and longer (60–95 × 4–5 µm) ascospores (Durand 1908), *H. elongatum* differs in curved shape of apical cells of paraphyses (Nannfeldt 1942), and *H. intermedium* has spores with 7–11 septa (Durand 1908).



Maximum likelihood tree (RAxML web server) was obtained from the ITS-LSU dataset sequences of *Hemileucoglossum pusillum* (H: holotype) and other *Geoglossaceae* species (TreeBASE submission ID 21213). The Bayesian analysis (MrBayes v. 3.2.5) was performed for 1 M generations under SYM+G model for ITS and GTR+G model for LSU. Numbers above branches indicate Maximum likelihood bootstrap values > 75 %, thickened branches indicate Bayesian posterior probabilities > 0.95. The scale bar represents the number of nucleotide changes per site.

Colour illustrations. Veľká Fatra Mts, Stankovany, calcareous fen Močiar with mineral spring; spores; paraphyses and asci; asci and amyloid reaction of the ascal apical ring; setose hairs of the stipe surface; ascocarps (all from holotype); type locality. Scale bars = 1 cm (ascocarps), 20 µm (microscopic structures).

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