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Trechispora elongata species nova from North Europe

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Abstract—*Trechispora elongata* (corticioid fungi, Basidiomycota) is described as new. It is reported from Finland, Norway, Poland and Sweden. Morphologically it belongs to the corticioid *Trechispora farinacea* group and is characterised by elongated spores and an anamorph.

Key words—*Corticiaceae*, taxonomy

Introduction

The genus *Trechispora* P. Karst. (Basidiomycetes) with corticioid and poroid species has received attention from several authors in the latest decades. A thorough revision was made by Liberta (1973) and more recently by Larsson (1992, 1995). Still, new species can be encountered even in the relatively well-studied area of Northern Europe. The new species described here belongs to the taxonomically difficult group of species close to *T. farinacea* (Pers. : Fr.) Liberta. The earliest specimen was first collected by John Eriksson 50 years ago and other mycologists have since collected it. After recent collections and Larsson's (1995) revision of the *T. farinacea* group, it has become possible to describe the species.

Materials and methods

The following mounting media were used when studying the specimens in the microscope: 1) Cotton Blue (CB): 0.1 g aniline blue (Merck 1275) dissolved in 60 g pure lactic acid; 2) Melzer's reagent (IKI): 1.5 g potassium iodine (KI) with 0.5 g crystalline iodine (I) and 22 g chloral hydrate dissolved in 20 ml aq. dist; 3) Potassium hydroxide (KOH): 2.5 g potassium hydroxide dissolved in 50 ml aq. dist. Cyanophilous reaction is abbreviated CB+, acyanophilous CB–, negative colour reaction in Melzer's reagent IKI–. When hyphae remain more or less unchanged in potassium hydroxide the note KOH– is used. All the drawings and measurements were made in CB.

Spores and basidia were measured with a 0.1 µm accuracy using magnification ×1000 and phase contrast illumination. The following abbreviations are used when reporting

spore or basidium size: L = mean length; W = mean width; Q = L/W; Q' = variation in quotient of spore length and width of individual spores; n = a/b, where a represents the number of spores measured from b specimens (if b is omitted, all spores are from the same specimen). When reporting spore and basidium size variations, the overall variation is written in parentheses. In size variation figures without parentheses, the extreme 5% ends of variation have been excluded. Whenever the figures within and outside parentheses are identical, parentheses are omitted.

All specimens studied here are deposited in the herbaria GB, H, and TAA.

Species description

Trechispora elongata Miettinen & K. H. Larss. **sp. nov.** **Fig. 1**

Basidioma resupinatum, arachnoideum vel byssoideum, tenue, hymenio laevigato. Systema hypharum monomiticum, hyphae exiles, tenuitunicatae. Conidia praesentia vel absentia, cyanophilia, crassitunicata, ex fragmentatione hypharum oriunda, 3.6–6.6×2.6–4.2 µm. Basidiosporae aculeatae, anguste ellipsoideae, plus minusve arcuatae, 3.7–5×2.1–2.8 µm.

Holotype—Finland. Pohjois-Häme: Jyväskylä rural municipality, Vuoritsalo, on *Populus tremula,* 5.VIII.2002 O. Miettinen 6605 (H).

Etymology—Latin word *elongata* refers to the elongated, i.e. long and narrow, basidiospores.

MycoBank accession number—MB510019

Basidiocarp resupinate, thin, commonly just a faint bloom on wood, surface smooth (except for the anamorph); easily separable from substrate but not pellicular, byssoid to usually arachnoid, always porose, pure white or appearing greyish due to thinness. Margin not differentiated, mycelial cords absent.

Hyphal system monomitic, all septa with clamps, all hyphae thin-walled (except for the anamorph), KOH–, CB– but plasma light blue in CB, hymenium stained more strongly, hyphae slightly yellowish in IKI. Crystals not detected.

Subiculum very thin, composed of sparse horizontal hyphae. Subicular hyphae straight, (1.5–)2–3(–5) µm in diameter, sparingly branched and clamped, rarely inflated, with no ampullate septa.

Subhymenial hyphae richly branched, slightly wider than subicular hyphae, cylindrical to slightly irregular, (2–)2.5–4(–5) µm in diameter, often rather short-celled but nearly always clearly longer than wide, only rarely swollen.

Basidia clavate or more often cylindrical, sometimes slightly constricted, with four curved, slender sterigmata (2.8–4 µm long), (6–)8.2–12.5(–15)×(3.5–)4–5.5(–7) µm, L=10.5 µm, W=4.7 µm, n=70/7.

Basidiospores narrowly ellipsoid to phaseoliform, aculeate, commonly curved, ventral side straight to concave, sometimes with an elongated proximal end, slightly CB+ to CB–. Spines of variable length but mostly 0.3–0.7 µm, single spines ≤ 1 µm, but generally shorter in the largest spores. Spores (not including spines) (3.3–)3.7–5(–5.7)×(1.8–)2.1–2.8(–3.1) µm, L = 4.2 µm, W=2.4 µm, Q'=(1.27–)1.45–2.09(–2.5), Q=1.75, n=222/7. Spores (including spines) (3.8–)4.1–5.2(–5.5)×(2.6–)2.8–3.8(–4) µm, L=4.6 µm, W=3.3 µm, Q'=(1.13–)1.19–1.73(1.85), Q=1.42, n=78/6.

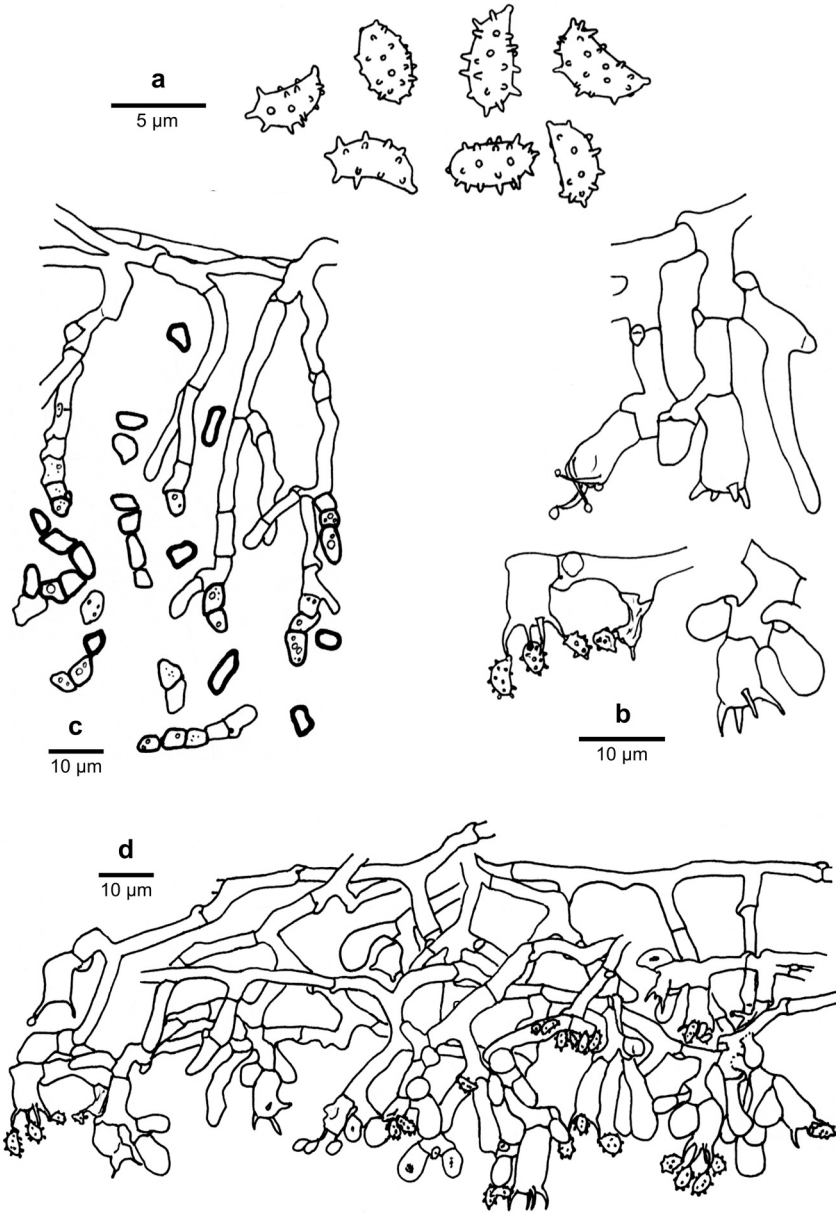

Fig. 1. *Trechispora elongata*, holotype. a) Basidiospores, b) basidia, c) conidiogenous hyphae and arthroconidia, d) section through the basidiocarp, slightly crushed.

Anamorph present or absent; forming white, roundish cushions, visible under the lens, and if large even with unaided eye. Conidia formed by fragmenting hyphae (arthroconidia), strongly CB+ and slightly dextrinoid, thick-walled, of variable length but of even thickness, with round corners, (3.4–)3.6–6.6(–6.8)×(2.3–)2.6–4.2(–4.7) µm, L=5.1 µm, W=3.3 µm, n=60/2, majority 3–3.5 µm wide. Anamorphic regions usually include some hymenium, but hymenium is formed mostly on different basal branches of subicular hyphae than conidia. Hyphae beneath the conidia-forming layer occasionally swollen, up to 8 µm wide.

Distribution and ecology. All the specimens studied grew on strongly decomposed wood. The holotype grew on *Populus tremula*, the other six specimens on *Picea abies* or *Pinus sylvestris*. Six of the collections originate from the Nordic countries and one from Poland. Collections range from nemoral (mountains of southern Poland) to middle boreal vegetation zone (central Finland). Collecting sites vary in their quality. Mostly they seem to be average managed coniferous forests. Although inconspicuous and thus easily overlooked, the species seems to be rather rare.

Remarks. *Trechispora elongata* is characterised by smooth, porose hymenium, narrowly ellipsoid spores with a tapering proximal end, and by the presence of arthroconidia. No other species of *Trechispora* has such long, relatively narrow spores as *T. elongata*. It comes close to *T. farinacea* and allied species (see Larsson 1992). *Trechispora elongata* can be distinguished from all the other species of this group based on spore morphology even in the absence of the conidial stage (Fig. 2, Tab. 1).

The conidial stage of *T. elongata* is quite similar to that of *T. stevensonii* (Berk. & Broome) K.H. Larss.: both look macroscopically the same and their conidia are formed by fragmenting hyphae with clamps. There are slight differences: the conidiogenous hyphae of the new species are wider than those of *T. stevensonii* (3–4 µm and 2.5–3 µm, respectively), and the majority of conidia of *T. stevensonii* are under 3 µm wide (3.2–5.4×2.2–3.5 µm, n=110/4) and weakly cyanophilous. Most conidia of *T. elongata* measure at least 3 µm wide and are rather strongly cyanophilous. Moreover, *T. stevensonii* has shorter, broadly ellipsoid basidiospores and a hydnoid hymenium in contrast to the new species.

Specimens of *T. farinacea* s. str. with smooth hymenophores resemble *T. elongata*. *Trechispora farinacea* has subglobose to broadly ellipsoid spores and wide and short subhymenial cells; *T. elongata* has narrowly ellipsoid spores and slender subhymenial cells.

Trechispora caucasica (Parmasto) Liberta bears some similarities with *T. elongata*: smooth and fragile basidiocarp, a macroscopically similar conidial stage and slightly curved, ellipsoid basidiospores. However, *T. elongata* produces arthroconidia and *T. caucasica* blastoconidia. Of the two, *T. elongata* has in relation narrower spores with a clearly tapering proximal end not present in *T. caucasica*. There is a clear difference in the Q values of the spores (Tab. 1). In addition, aculei of spores of *T. caucasica* are longer than those of *T. elongata* (most close to 1 µm), and it produces abundant rhizomorphs unlike *T. elongata*.

Specimens studied—*Trechispora elongata*. **Finland** (see *type). **Norway**. Sør-Trøndelag: Orkdal, Songli, on *Pinus*, 26.VIII.1982 K. H. Larsson **2907* (GB); on *Pinus*, 27.VIII.1982 K. H. Larsson *2935*. Telemark: Porsgunn, on *Picea*, IX.1996 J. N. Stokland et al. 4651

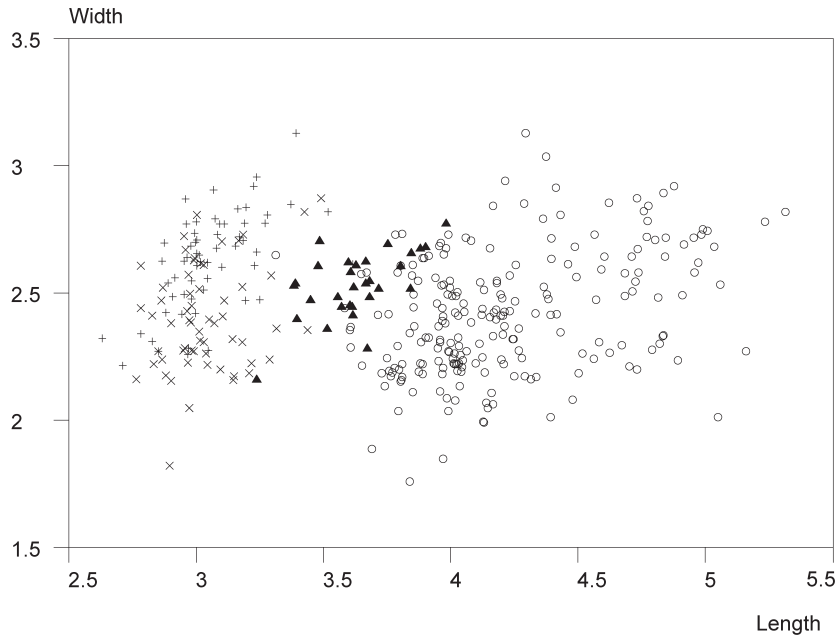

Fig. 2. Spore measurements (µm) comparing *Trechispora elongata* (○) with *T. caucasica* (▲), *T. farinacea* (+) and *T. stevensonii* (×). Each symbol represents a single spore. The points have been jittered, i.e. moved randomly within 0.05 µm around the original value along both axes.

Table 1. *Trechispora* species: basidiospore measurements of the specimens studied, spines excluded, and combined statistics for each species.

Specimen	Length (µm)	L	Width (µm)	W	Q′	Q	n
T. caucasica	**(3.2–)3.4–3.9(–4.0)**	**3.63**	**(2.2–)2.3–2.7(–2.8)**	**2.53**	**1.3–1.6**	**1.43**	**30**
T. elongata	**(3.3–)3.7–5.0(–5.7)**	**4.22**	**(1.8–)2.1–2.8(–3.1)**	**2.41**	**1.3–2.5**	**1.75**	**222/7**
holotype	(3.7–)3.8–5.0(–5.2)	4.34	(1.8–)2.0–2.7(–2.8)	2.29	1.5–2.5	1.89	38
Eriksson 1254	(3.7–)3.8–5.0	4.41	(2.0–)2.2–2.9(–3.0)	2.58	1.4–2.1	1.71	30
Hjortstam 11758	(3.6–)3.8–5.3(–5.7)	4.17	(2.1–)2.2–2.9(–3.1)	2.44	1.5–2.1	1.71	31
Larsson 2509	3.8–4.7(–5.1)	4.11	2.0–2.7(–2.9)	2.32	1.4–2.1	1.78	31
Larsson 2907	(3.7–)3.8–4.8(–5.2)	4.13	(2.0–)2.1–2.9(–3.1)	2.40	1.4–2.3	1.72	30
Larsson 2935	(3.3–)3.6–4.8(–5.0)	4.09	2.2–2.7(–2.8)	2.49	1.3–2.0	1.64	31
Stokland 4651	(3.7–)3.8–5.0	4.27	(1.9–)2.2–2.8	2.43	1.4–2.1	1.76	31
T. farinacea	**(2.6–)2.8–3.4(–3.6)**	**3.06**	**(2.2–)2.3–2.9(–3.1)**	**2.63**	**1.0–1.4**	**1.17**	**60/2**
Kotiranta 7336	(2.8–)2.9–3.5(–3.6)	3.06	2.3–2.8	2.59	1.1–1.4	1.18	30
Miettinen 6697	(2.6–)2.7–3.3(–3.4)	3.06	(2.2–)2.3–3.0(–3.1)	2.66	1.0–1.3	1.15	30
T. stevensonii	**2.8–3.4(–3.5)**	**3.04**	**(1.8–)2.2–2.8(–2.9)**	**2.41**	**1.1–1.6**	**1.26**	**60/2**
Jakobsson 1379	2.8–3.4(–3.5)	3.04	2.2–2.8(–2.9)	2.51	1.1–1.4	1.21	30
Saarenoksa 52190	2.8–3.3	3.04	(1.8–)2.0–2.6(–2.7)	2.30	1.1–1.6	1.32	30

(GB). **Poland**. Malopolska: Sucha Beskidzka, Babia Góra National Park, on *Picea,* 15.IX.1973 N. Hallenberg & K. H. Larsson 2509 (GB). **Sweden.** Dalsland: Dals-Ed, 3 km N of Ed, Käringedalen, on *Pinus*, 2.IX.1980 K. Hjortstam 11758 (GB). Småland: Värnamo, in between Alandryd and Gislabo, on gymnosperm, 9.X.1955 J. Eriksson 1254 (GB).—Specimens with an anamorph are marked with an asterisk (*).

Trechispora caucasica. **Azerbaidzhan.** Leriki, on *Parrotia persica*, 14.XII.1962 E. Parmasto 16448 (holotype TAA).

Trechispora farinacea. **Finland.** Etelä-Häme: Lammi, biological station, on *Quercus,* IX.2002 O. Miettinen 6697 (H). Uusimaa: Inkoo, Sommaröarna, on gymnosperm, 26.V.1989 H. Kotiranta 7336 (H).

Trechispora stevensonii. **Finland.** Etelä-Häme: Lammi, biological station, on *Corylus avellana,* 13.IX.1997 S. Vanhanen 334b (H). Keski-Pohjanmaa: Raahe, Seminaariranta, on *Alnus,* 3.IX.1995 S. Jakobsson 1379 (H). Uusimaa: Helsinki, Viikki, on *Prunus padus,* 5.IX.1989 R. Saarenoksa 20689 (H); Helsinki, Vanhakaupunki, on *Prunus padus,* 18.VII.1990 R. Saarenoksa 52190 (H).—All specimens with an anamorph.

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