



A. Habit on twig; B. Ascomata viewed through hand lens; C. Ascoma viewed with dissecting microscope;
D. Ascoma in vertical transverse section; E. Asci, ascospores and paraphyses.

Colpoma crispum (Pers.) Sacc., *Sylloge Fungorum* 9: 1127, 1891.

Hysterium crispum Pers., *Synopsis Methodica Fungorum* 1: 101, 1801.

Hypoderma crispum (Pers.) DC., *Flore Française* Edition 3 5/6: 167, 1815.

Tryblidium crispum (Pers.) Pers., *Mycologia Europaea* 1: 332, 1822.

Hysterium elatinum β *crispum* (Pers.) Fr., *Systema Mycologicum* 2 (2): 584, 1823.

Colpoma elatinum β *crispum* (Pers.) Wallr., *Flora Cryptogamica Germaniae* 2: 423, 1833.

Pseudographis elatina β *crispa* (Pers.) P. Karst., *Bidrag, till Kännedom af Finlands Natur och Folk* 23: 237, 1873.

Clithris crispa (Pers.) Rehm, *Rabenhorst's Kryptogamen-Flora von Deutschland, Oesterreich und der Schweiz* Zweite Auflage. Vol. 1. 3. Abth: Ascomyceten: Hysteriaceen und Discomyceten 1 (3): 103, 1888.

Pragmoparopsis crispa (Pers.) Höhn., *Annales Mycologici* 15: 320, 1917.

Colonies. On pale brittle areas of dead twigs attached to living trees. *Zone lines*. Not observed. *Conidiomata*. Not observed. *Ascomata*. *Habit*: scattered and at different angles, sometimes with lichen thalli between individuals. *External appearance*: long and thin, 0.7-3 x 0.4-1 μm , sometimes curved or with irregular branching, with a poorly-defined edge and usually only the lips and dull blackened upper wall immediately next to the split being visible, the rest being covered by bark and lichen thalli, markedly raising the twig surface, in humid conditions opening by a single longitudinal split or a split with one or two branches line with pale grey lips to reveal the greyish or, when fresh, bluish-grey hymenium; remains of ascomata which have been eaten also sometimes seen, these being no more than an elliptical sunken and blackened area composed of the remaining lower wall. *In vertical transverse section* embedded: beneath the outermost tanned bark cells; upper wall composed of cells 5-7 μm diam with blackened walls mostly forming a *textura angularis*, but near the split sometimes forming a *textura prismatica* or even *textura porrecta*, up to about 80 μm thick, with a sometimes wider and rather complex layered and branched region near the split lined with pale lip cells, becoming thinner towards each side, where it extends as far as the edge, and joins the lower wall: lower wall located above remaining and not markedly tanned bark cells, composed of cells 5-7 μm diam with walls less blackened than those of the upper wall and forming a *textura angularis*, about 40 μm thick towards the centre of the ascoma, becoming much wider towards the edges, with small refractive crystals embedded within and below; subhymenium located immediately above lower wall, composed of thin-walled colourless hyphae forming a *textura intricata* up to about 20 μm thick; hymenium located below the upper wall and immediately above the subhymenium. *Paraphyses*: colourless, filiform, smooth, septa not observed, branching not observed, about 1 μm wide, clearly longer than the asci, with flexuous hooked tips, embedding gel not observed, hyphal bridges at bases not observed. *Asci*: not all maturing at the same time, elongated clavate, 80-120 x 8-10 μm , with only one uniformly thin wall layer visible using the light microscope, with a rounded apex not turning blue in iodine, with no pre-formed apical pore visible using the light microscope, opening with a small apical split, often collapsed and wrinkled after discharge of the spores. *Ascospores*: 8 per ascus, arranged in a bundle inside the ascus, rod-shaped to filiform, colourless, aseptate, thin-walled, smooth, 26-42 x 1.5-2 μm , sometimes enveloped in a mucous sheath about 0.5 μm thick while still within the ascus, the sheath not observed outside the ascus.

DISEASE: On dead, rather brittle twigs of *Picea abies*, but usually attached but sometimes fallen by the time ascomata contain ascospores. Probably involved in self-pruning of the tree, but associated with lichen colonies unlike species of *Therrya* on *Pinus* (IMI Descriptions 1297 and 1298), and *Colpoma* on *Quercus* (IMI Description 942) which occur on twigs without lichen colonies.

HOSTS: *Juniperus virginiana* (twig), *Larix* sp. (bark, twig), *Picea abies* (bark, twig), *Picea* sp. (bark), *Pseudotsuga menziesii* (twig).

GEOGRAPHICAL DISTRIBUTION: Germany, Italy, Sweden, UK (England, Scotland, Wales), Ukraine, USA (Oregon). Unsuccessful searches in north-west Poland. Altitude records exist up to 950m (Ukraine).

PHYSIOLOGIC SPECIALIZATION: None reported.

TRANSMISSION: By air-borne ascospores in humid conditions. In the temperate northern hemisphere, ascocarps probably mostly open in late summer and early autumn.

NOTES: Information about hosts, substrata and geographical distribution is based on 26 records in the author's computerized database, and on literature. *Colpoma crispum* is a rather poorly-known species with no recent descriptions. It has been confused with *C. juniperi* in the past: in fresh material *C. crispum* has an almost bluish hymenium, whereas that of *C. juniperi* is pale grey; ascomata of *C. crispum* have pale lip cells lining the split, and these have not been observed in *C. juniperi*. Some records of *C. crispum*, particularly those not on *Picea*, may be incorrect.

LITERATURE: Sherwood, *Occasional Papers of the Farlow Herbarium of Cryptogamic Botany* **15**: 1-120, 1980 [esp. pages 60-62].

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[Numbers in brackets, e.g. (62, 5055), refer to abstracts in the Review of Plant Pathology]

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