Three new epilithic Xanthoria species from the southwestern Baltic Sea region.

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Three new epilithic *Xanthoria* species from the southwestern Baltic Sea region

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Abstract

Three species new to science in the genus *Xanthoria* (Teloschistaceae), *X. pedersenii, X. pylyporlykii* and *X. wennergrenii*, from the southwestern Baltic Sea region are presented and compared with related species.

Introduction

Xanthoria (Teloschistaceae) is a genus of lichenized fungi with a worldwide distribution. Before the molecular era, the genus included c. 50 species (Kärnefelt, 1989), but today only 13 species remain in *Xanthoria* in the strict sense (Kondratyuk et al., 2022a). Three or four species of this genus were hitherto reported from the southwestern Baltic Sea region.

Material & Methods

A method of collecting epilithic lichens thalli without damaging the rock surface with water spray pretreatment was developed. Approximately 2500 specimens were collected at 110 localities (Fig. 1–3). At least 50 ascospores outside of apothecium sections in separate specimens were measured. Conclusions about new species were based on correlation of morphological, anatomical and molecular (nrITS phylogeny) data. The specimens were studied and determined microscopically at the unit of Molecular Cell Biology, Department of Biology, Lund University.

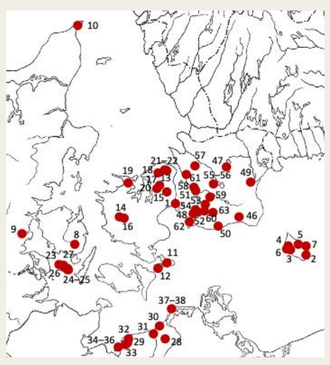

Fig. 1. Investigated sites with epilithic *Xanthoria* species in the southwestern Baltic Sea region

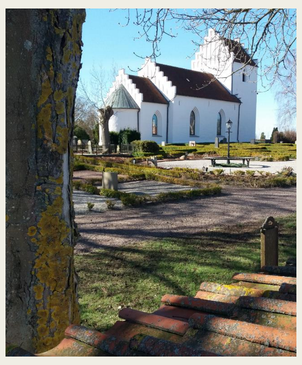

Fig. 2. Investigated site: Tofta church, Skåne, Sweden. 02.04.2023

Fig. 3. Tiles of cemetery wall with *Xanthoria pylyporlykii.* Tofta church, Skåne, Sweden.

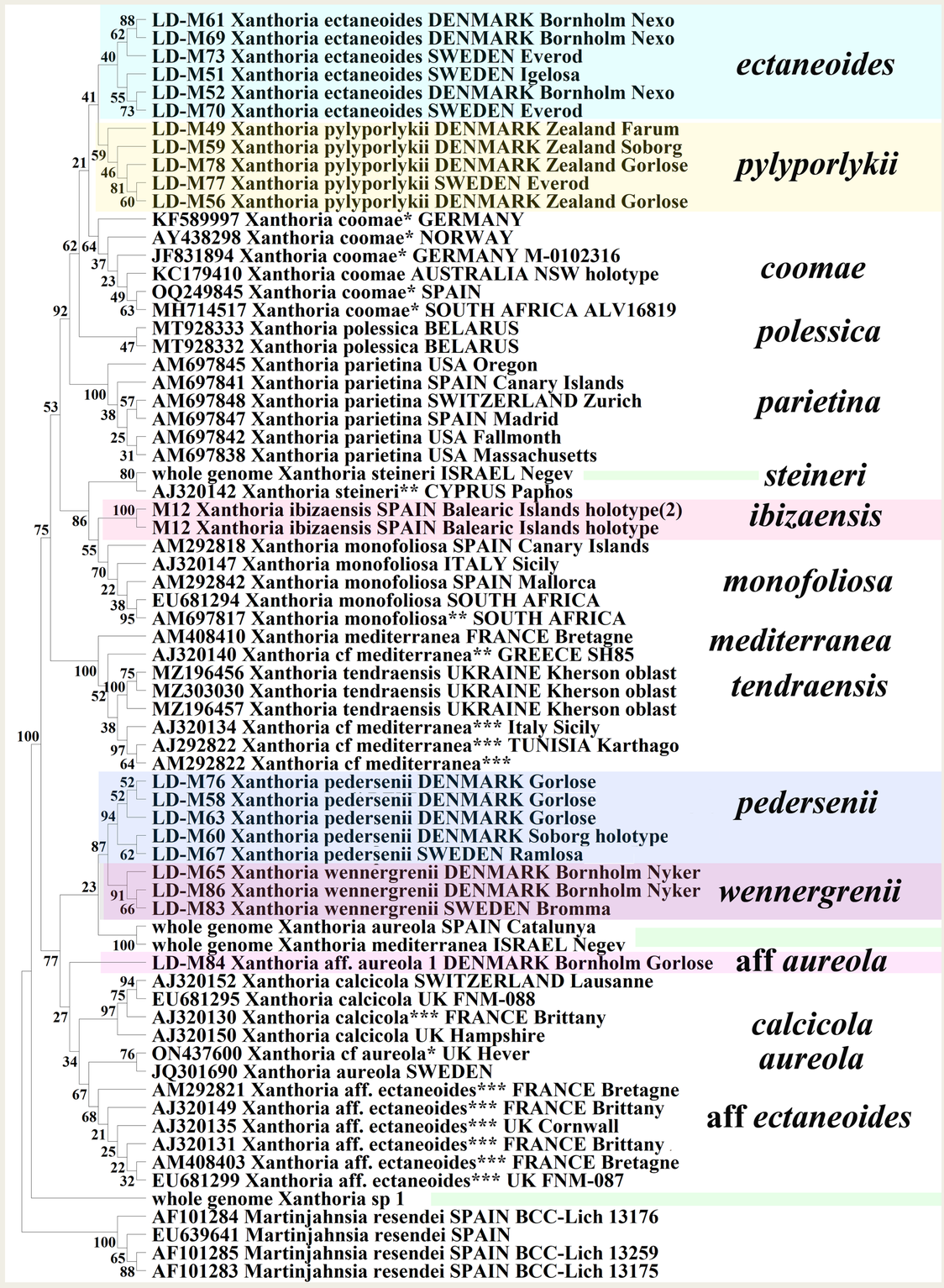

Fig. 4. Consensus MP tree based on nrITS of the members of the genus *Xanthoria* *data are submitted to GenBank as *Xanthoria parietina*, **as *Xanthoria* sp., and ***as *Xanthoria ectaneoides*.

Results & Discussion

Molecular data for specimens of *Xanthoria ectaneoides,* identical with Nylander's type specimen, is presented. The species is positioned in a separate subclade – not in the *Xanthoria calcicola* subclade (Fig. 4). *Xanthoria aureola* and *X. calcicola are* found to be rather rare species in the investigated region, while *X. ectaneoides* and *X. pylyporlykii* are more common. Three species new to science, *Xanthoria pedersenii, X. pylyporlykii* and *X. wennergrenii* are described and illustrated.

Fig. 5 *Xanthoria pedersenii*.

Fig. 6 *Xanthoria pylyporlykii*.

Fig. 7 *Xanthoria wennergrenii*.

Xanthoria pedersenii (ined. Kondratyuk et al. 2024b) (Fig. 5). This species is similar to *Xanthoria calcicola*, but differs in having thin, paper-like thalline lobes, in having smaller knob-like warts, which may resemble coarse isidia, which never fall off, in having much narrower ascospores and much wider range of variation of ascospore septa, and in having slightly shorter but wider conidia.

Etymology: This species is named after **Christiern Pedersen** (*ca* 1480–16 January 1554), a Danish canon, humanist, writer, printer and publisher, who is best known for the new edition of Saxo's chronicle which thus saved the early Danish history for posterity and the translation of the Bible into Danish, known as 'Christian III's Bible'. His role in Denmark can be compared with the humanist and theologian Erasmus Rotterdam in the Netherlands.

Xanthoria pylyporlykii S.Y.Kondr., Kärnefelt & A.Thell in Kondratyuk et al. (2024a) (Fig. 6). The species is similar to *Xanthoria ectaneoides,* but differs in having wider thalline lobes, well-developed overlapping and irregularly orientated in the centre of the thallus, shorter ascospores and narrower ascospore septa.

Etymology: It is named after **Pylyp Orlyk** (21 Oct 1672–26 May 1742), in-exile Hetman of Ukraine and the author of the Constitution of Pylyp Orlyk (the first constitution of Ukraine). In 1716–1719 Pylyp Orlyk lived in Kristianstad with his family after an official invitation from the Swedish king Karl XII. The Latin-language original of the Constitution of Pylyp Orlyk with his signature is kept in the National Archives of Sweden.

Xanthoria wennergrenii (ined. Kondratyuk et al. 2024b) (Fig. 7). The species is similar to *Xanthoria calcicola*, but differs in having smaller thalline lobes, well developed in the peripheral zone only, pustule-like isidia and a bulky centre of the thallus, longer ascospores and wider septa.

Etymology: The new species is named after **Axel Wenner-Gren** (originally Wennergren, 5 June 1881 – 24 November 1961), a Swedish industrialist and philanthropist, who established foundations to support research including the fellowship received by the first author for this taxonomic revision of the *Xanthoria calcicola* group.

References

Kondratyuk et al. (2024a) Acta Botanica Hungarica 66(1–2): 47–77.

Kondratyuk et al. (2024b) Acta Botanica Hungarica 66(3–4): (accepted).

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