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Lichenicolous fungi associated with southern Scandinavian *Xanthoria calcicola* s.lat.

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Abstract

Eleven species of lichenicolous fungi associated with *Xanthoria calcicola* s.lat. are found in southernmost Scandinavia, i.e., Skåne, the southernmost province in Sweden and southern Denmark. Two species, *Didymocyrtis slaptoensis* and *Pyrenochaeta xanthoriae*, are reported as new for the Nordic countries, whereas three species, *Didymocyrtis* cf. *consimilis*, *Erythricium aurantiacum*, and *Illosporopsis christiansenii* are new for Skåne.

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). In recent years, the knowledge of lichenicolous fungi associated with *Xanthoria* has increased considerably. Currently, more than 40 lichenicolous species associated with *Xanthoria* s.lat., are known (Diederich et al., 2018; Tsurukau & Etayo, 2017; Suija et al., 2021).



Fig. 3 Sweden, Skåne. Tofta church, investigated site 36 (Fig. 1), 2 April, 2023.



Fig. 4 Sweden, Skåne. Tofta church, tiles of cemetery wall, 2 April, 2023.

Material & Methods

All lichenicolous fungi associated with *Xanthoria calcicola* s. lat. were listed from 37 localities in southernmost Scandinavia (Fig. 1). All localities are open habitats, preferably churchyards, potentially suitable for epilithic *X. calcicola* s. lat. A frequency study of the commonest species, *Telogalla olivieri* (Fig. 2), was performed. The specimens were studied and determined microscopically at the unit of Molecular Cell Biology, Department of Biology, Lund University.

ACKNOWLEDGEMENTS

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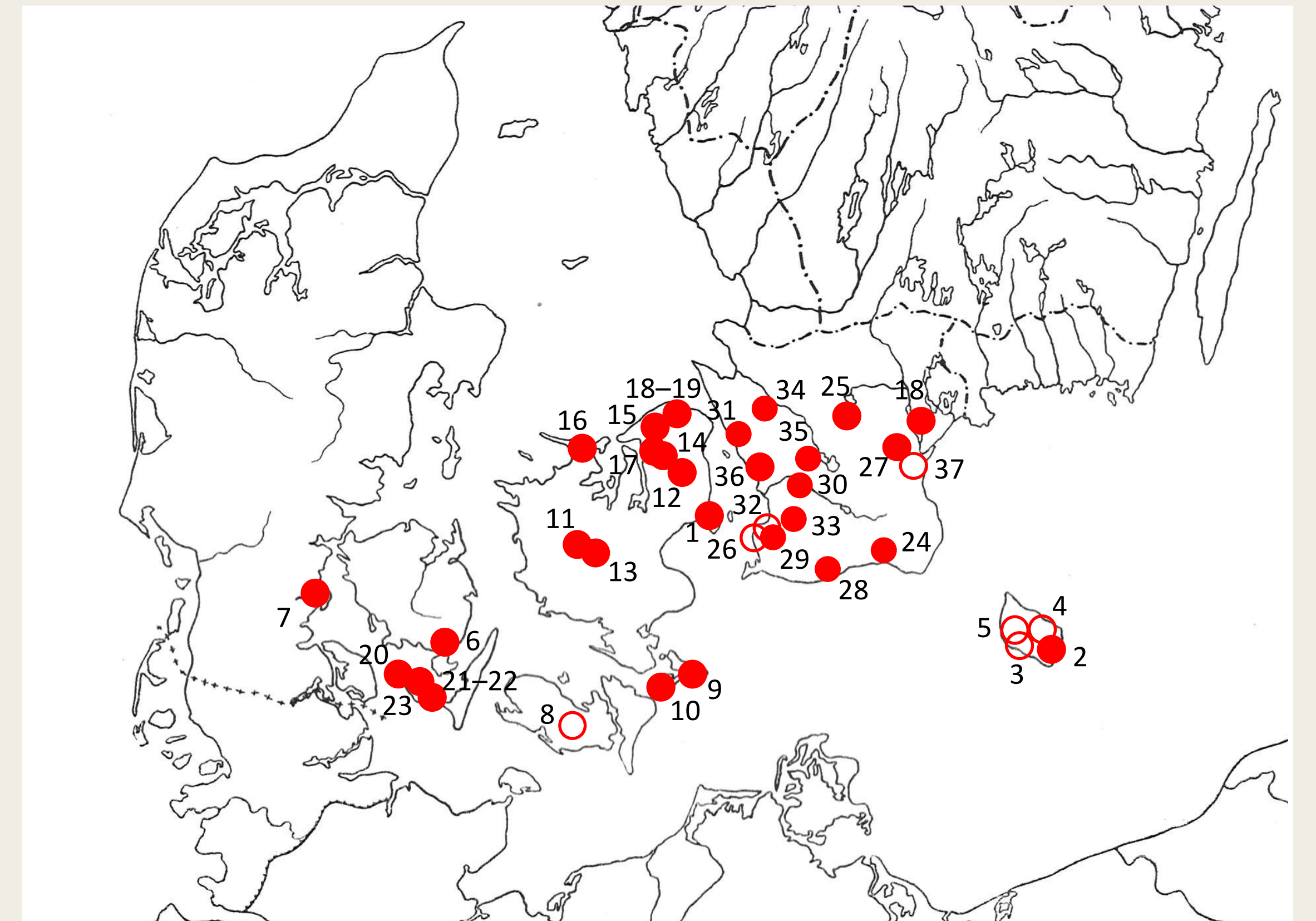
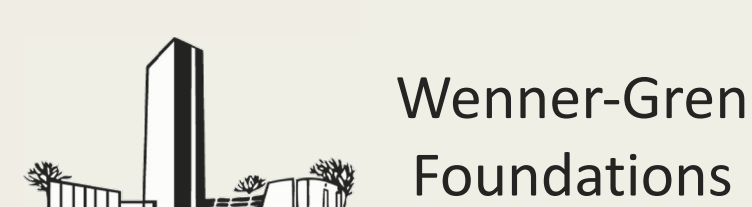


Fig. 1 Investigated sites with *Xanthoria calcicola* s. lat., with lichenicolous fungi (filled circles) in southern Scandinavia.

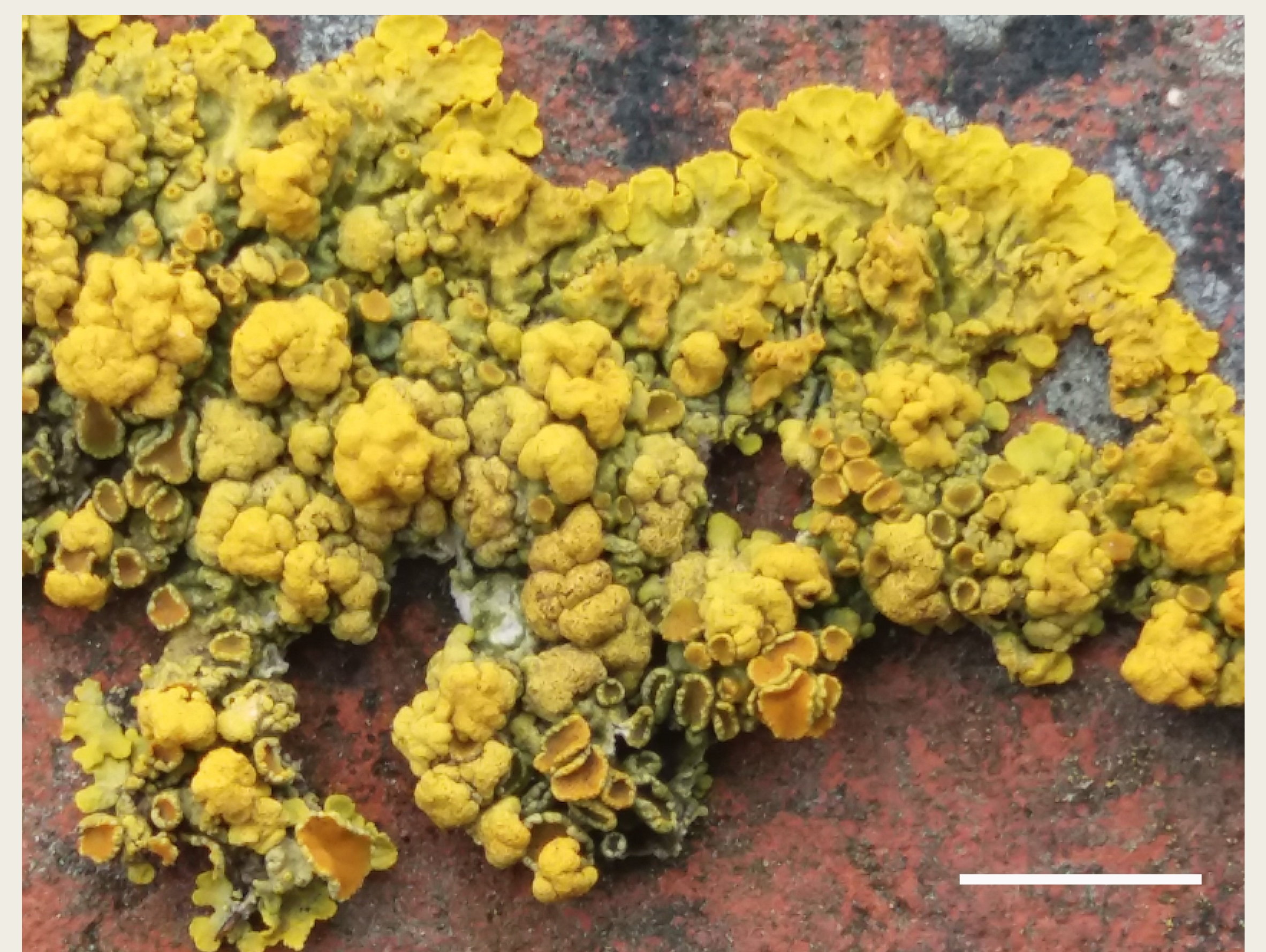


Fig. 2 *Telogalla olivieri* on *Xanthoria* aff. *ectaneoides*, Søborg church, investigated site 19 (Fig. 1), 16 April, 2023. Lichenicolous fungus infecting particularly the central portion of the host thallus (field photos, Scale 1 cm).

Results & Discussion

The largest number of lichen specimens were collected at seven plots in Denmark, and four in Sweden. No lichenicolous fungi were found at seven of the 37 investigated sites. Within this study, eleven species of lichenicolous fungi were found associated with epilithic *Xanthoria* in southern Scandinavia (Kondratyuk et al. 2023). Among the records, *Telogalla olivieri* was the commonest lichenicolous fungus, found at 28 sites, and at 13 sites, it was the single lichenicolous fungus recorded. The number of species of lichenicolous fungi found per site varied between one and nine. Three species, i.e., *Athelia arachnoidea*, *Pyrenochaeta xanthoriae* and *Telogalla olivieri* were the most abundant, often killing the host thalli.