

## Short Communications

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### *Caloplaca britannica* common in non-maritime environments

The genus *Caloplaca* is taxonomically difficult. Many species are characterized by a combination of morphological traits, and there are only a few useful microscopic characters. The secondary chemistry is rather uniform and of little taxonomic value, notwithstanding the usually bright pigmentation.

To make things even more complicated, many species are thought to be restricted to a certain habitat, for example bark or stone, and ‘ecologically vicariant’ species tend to be recognized on these substrata. The element most difficult to judge in this respect is that of the maritime species. Although the ‘yellow zone’, which is present more or less worldwide on stony seashores, is widely known in lichenology and even to the general public, it remains to be seen how restricted the ecological amplitude of the many maritime *Caloplaca* species really is, although there exist several taxonomic and ecological papers (e.g. Bouly de Lesdain 1953; Arup 1995, 1997) devoted to maritime *Caloplaca* species in maritime environments only.

As a working hypothesis, while identifying lichens on rocky sea shores, we support the assumption that both maritime and non-maritime species can be present. This is especially necessary in cases where the maritime influence has been cut off. An example is found along the former sea ‘Zuiderzee’ in the central part of the Netherlands; a lake cut off by a 30 km long artificial dike from the North Sea in 1932. As a result of the continuing influx of rain and river water, this huge sea soon became a brackish lake, and is now freshwater. Now, at the turn of the 21st century, decidedly maritime lichens still occur

on the surrounding dikes. Species such as *Anaptychia runcinata*, *Aspicilia leproscens*, *Caloplaca maritima*, *Ramalina siliquosa*, and *Verrucaria maura* grow side-by-side with non-maritime species such as *Aspicilia caesiocinerea*, *Caloplaca flavovirescens*, *Verrucaria glaucina*, and *V. hydrela*, to name just a few.

*Caloplaca britannica* R. Sant. was described rather recently from maritime rocks in Scotland (Laundon 1992) and has so far been only reported from the Netherlands outside the British Isles (Aptroot & van Heesch 1996). This was from the dike of the Zuiderzee which is now an inland lake. It is characterized by a micro-squamulose thallus and the presence of granular soredia. These soredia were not mentioned as such in the original publication, where they are called small granules, and “distinct . . . soralia” are reported to be “absent”. Nor are they mentioned in the subsequent treatment of the species by Laundon in Purvis *et al.* (1992), but they are present in most material studied by us, including the isotype (in E) and several paratypes, kindly sent to us on loan by B. J. Coppins.

In the meantime, while compiling inventories of lichens on church walls, we became aware of the presence of an ubiquitous sorediate microsquamulose *Caloplaca* in addition to *C. flavocitrina* (Nyl.) A.E. Wade, differing mainly by the somewhat radiating thallus and the heaped, uneven microsquamules. The soredia form soralia which are often lip-shaped, and are usually only present towards the centre of the colonies. Apothecia are common, and often exhibit both a parathecium and a thalline margin, resembling the apothecia of *C. ruderum* (Malbr.) J.R. Laundon. Both species were

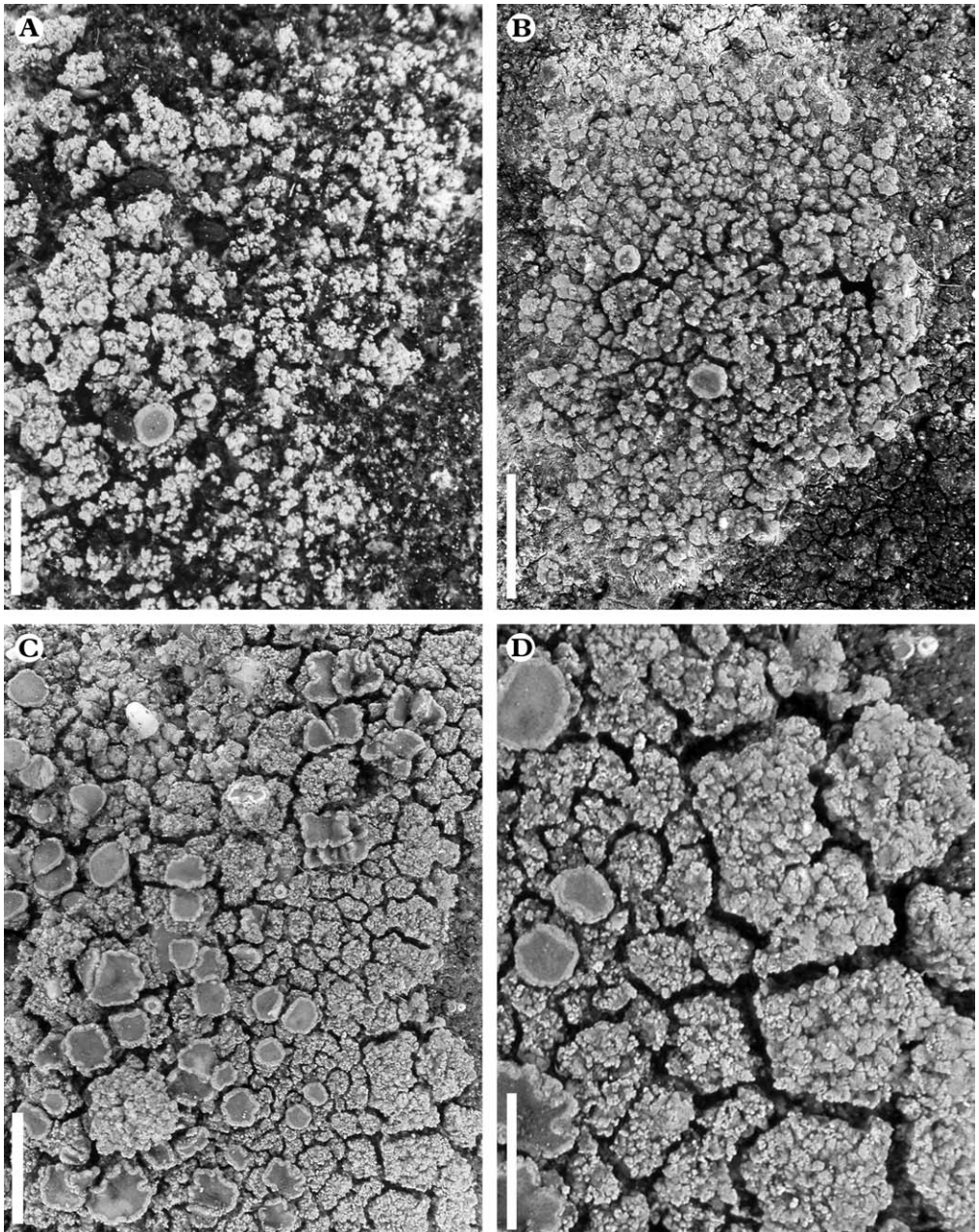


FIG. 1. *Caloplaca britannica* from different rock types and habitats. A, morph with scattered areoles and sparse soredia from calcareous sandstone (seadike near Ouwerkerk, Netherlands); B, continuous morph without soredia but surrounded by a white prothallus from basalt (dike along freshwater lake, IJsselmeer, Hindeloopen, Netherlands); C, areolated morph with numerous soralia from eutrophicated top of brick wall (near church of Soest, Netherlands); D, *ibid.*, showing the slightly lip-shaped soralia. Scales: A, B & C=2 mm; D=1 mm.

often found growing side by side, usually together with the fully crustose and truly sorediate *C. citrina* (Hoffm.) Th. Fr., the more orange and corticate-granular (technically isidiate) *C. coronata* (Kremp. ex Körb) J. Steiner, and the truly placoid *C. decipiens* (Arnold) Blomb. & Forssell.

When more material of the micro-squamulose sorediate species became available from a wide range of substrata, the conclusion was unavoidable that it was conspecific with the isotype of *C. britannica* and with the Dutch material from the dike of the former sea. A further synonym is *Caloplaca limonia* Nimis & Poelt (Nimis *et al.* 1994), described from Italy (Sicily). We have not examined the type, but topotype specimens (in ABL) and detailed illustrations (in ITALIC) agree fully with our taxon. A common character of all the material studied is the microsquamulose thallus surface. All intermediate morphs between specimens without soredia and specimens with abundant lip-shaped soralia have been found. The general habit depends on the kind of rock, being often with scattered areoles on calcareous stone (Fig. 1A), and more commonly areolated or continuous on basalt (Fig. 1B) or brick (Fig. 1C & D). Specimens on brick are reminiscent of *Candelariella vitellina* (Hoffm.) Müll.Arg., but that species has a more greenish-yellow colour.

*Caloplaca britannica* is now known to us from Belgium (Van den Broeck & Aptroot 2003), Britain, Italy, Germany (Kleve, pers. comm. N. Stapper), Greece (Sipman & Raus 2002), Ukraine (Khodosovtsev, 2001), and The Netherlands. Most of the records from the last country are from artificial substrata such as walls and dikes, and it should be looked for in adjacent countries especially on old eutrophicated walls. It is especially common on churches and old walls in the west. We have examined over a hundred specimens from mortar, brick, concrete, basalt, granite, quartzite and wood. We even found it once on a dusty root of a *Tilia* sp. in a churchyard, where it was accompanied by both *C. citrina* and *C. flavocitrina*. The specimens range from sea level at truly maritime sites along the Wadden Sea

in Groningen and the North Sea in Zeeland to inland habitats such as the top of a 120 m high church tower in Utrecht. Specimens are too numerous to cite, and a distribution map would only illustrate recent recording efforts. The species is estimated to be common in our country and to occur in over half of the 5 × 5 km recording quares. Specimens of *C. flavocitrina* s.str., with which inland specimens are likely to have been confused, were readily available from a multitude of countries including the USA, suggesting that this species is more widespread.

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#### André Aptroot and C. M. van Herk

A. Aptroot: Centraalbureau voor Schimmelcultures, P.O. Box 85167, NL-3508 AD Utrecht, The Netherlands.

C. M. van Herk: Lichenologisch Onderzoeksbureau Nederland, Goudvink 47, NL-3766 WK Soest, The Netherlands.