

Lichens of Great Britain & Ireland edn 3

Draft genus account version 1.1, January 2018

Prepared by Paul Cannon, based on the LGBI2 account by Gilbert & James (2009)

CANDELARIA A. Massal. (1852)

Thallus squamulose, minutely fruticose or small-foliose, yellow-green to chrome-yellow, upper surface corticate, lower surface corticate or not, then arachnoid, K–. **Photobiont** chlorococcoid. **Upper and lower cortices** (where present) composed of angular cells. **Ascomata** apothecia, laminal, sessile. **Thalline exciple** persistent. **True exciple** rudimentary. **Epithecium** yellow-brown, granular. **Hymenium** colourless, I+ blue. **Hypothecium** colourless. **Hamathecium** of paraphyses, the apices swollen, simple, nodular. **Asci** 20- to 50-spored, *Candelaria*-type (Fig. 9n), with an apical dome K/I+ blue only in the lower part and penetrated by a broad apical cushion. **Ascospores** colourless, ellipsoid, aseptate or narrowly 1-septate, biguttulate. **Conidiomata** pycnidia, laminal, immersed within raised warts on the thallus surface; wall colourless. **Conidiogenous cells** elongate bottle-shaped, arising in groups on branched conidiophore cells. **Conidia** ellipsoid, simple, colourless. **Chemistry**: calycin and pulvinic dilactone. **Ecology**: on nutrient-rich bark, rarely on rock. **Distribution**: seven species, cosmopolitan.

Literature:

- Gilbert, O.L. & James, P.W.** (2009). *Candelaria*. In *Lichens of Great Britain and Ireland* (Smith, C.W., Aptroot, A., Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W. & Wolsley, P.A. eds): 275. London: British Lichen Society.
- Westberg, M. & Arup, U.** (2010). *Candelaria concolor* – a rare lichen in the Nordic countries. *Graphis Scripta* 22: 38–42.
- Westberg, M. & Arup, U.** (2011). *Candelaria pacifica* sp. nova (Ascomycota, Candelariales) and the identity of *Candelaria vulgaris*. *Bibl. lichen.* 106: 353-364.
- Westberg, M., Morse, A.M. & Arup, U.** (2011). Two new species of *Candelariella* and a key to the *Candelariales* (lichenized Ascomycetes) in North America. *Bryologist* 114: 325-334.

- 1 Thallus 0.2-0.5 mm broad, distinctly lobate, the lobes neatly branched with a smooth, flattened surface, forming small, adnate rosettes or cushions; lower cortex present, smooth **concolor**
Thallus lobes usually 0.1-0.3 mm broad, squamulose or minutely foliose to fruticose, often raised and contorted, forming poorly defined coalescing rosettes; lower cortex absent, arachnoid..... **pacifica**

Candelaria concolor (Dicks.) Stein (1879)

LC

Thallus typically forming small, discrete suborbicular cushions <1 cm across, irregularly spreading, sometimes coalescing or in scattered fragments, ± closely appressed, occasionally dissolved into coarse, ascending granules; lobes flattened, finely divided, c. 1 mm long, 0.2-0.5 mm wide, surface flat or ± wavy, often somewhat raised and fan-like, the margins distinctly crenulate, ± overlapping, entire, often becoming blastidiate or coarsely sorediate, bright yellowish green to chrome-yellow above; lower surface corticate, matt, almost white beneath; rhizines scattered, simple, white. Apothecia 0.4-1 mm diam., rare; disc dull greenish-orange or pale brownish-yellow; thalline exciple smooth, becoming ± uneven-granular with age, concolorous with the disc. Ascospores 6-14 × 4-6 µm, biguttulate. Conidiomata pycnidia, c. 100 µm diam., rare; conidia 1.8-2.7 × c. 1 µm. Thallus C–, K–, KC–, Pd–, UV–. **BLS 289**.

On nutrient-rich bark of well-lit, wayside broad-leaved trees, especially *Acer*, *Fraxinus*, *Salix* and *Ulmus*, also on wooden fences, occasionally on nutrient-enriched rocks and walls; local but spreading, likely due to its tolerance for nitrogen. Throughout the British Isles. Cosmopolitan.

Forming small, delicate, yellow, intricate patches often in the branch axils and rain tracks of tree trunks. Irregular cushions may resemble *Xanthoria ulophyllodes* which is less delicate in appearance and has a deeper orange, K+ purple thallus.

Candelaria pacifica M. Westb. & Arup (2011)

NE

Thallus small, very variable, of scattered, minute squamules or minutely foliose or subfruticose, rarely forming weakly defined rosettes to 5 mm wide, usually coalescing to form extensive colonies. Lobes mostly raised to erect, branched, to 0.5 (-2) mm long and 0.1- 0.3 mm broad, shade forms typically consisting of erect, very narrow lobes, lemon yellow (in shade) to bright yellow, smooth to somewhat pulverulent, with copious blastidia 30-100 µm diam. formed primarily from the lobe margins, sometimes almost completely dissolved into blastidia with few visible lobes; thallus corticate above, cortex very uneven, lower surface irregular and ecorticate, arachnoid, white to greenish; rhizines rarely present, minute. Apothecia and conidiomata not known in European material. Thallus C-, K-, KC-, Pd-, UV-. **BLS 2578.**

On nutrient-enriched bark of broad-leaved trees, sometimes also on worked timber. Currently reported only from East Anglia, but probably under-recorded. Northern Europe and Scandinavia, Canada and montane USA.

Similar to *C. pacifica* but with more delicate and copiously blastidiate thallus lobes, which are often coalesced into crusts.