

Tentative key to species of *Sticta* in continental Europe when lichenized with *Nostoc*

From N. Magain & E Sérusiaux, Mycological Progress (2015) 14:97, DOI 10.1007/s11557-015-1109-0. The structure of key has been altered to the traditional form for the comfort of those habituated to this; otherwise the key is as in the original.

- 1 Thallus always producing soralia, mainly at lobes margins ***Sticta limbata***
(*S. limbata* is the only species with soralia in continental Europe; otherwise it has rather large, suborbicular lobes with plane and undulating margins)

Thallus never with soralia, always with isidia or phyllidia..... 2
- 2 Thallus with upper surface strongly maculate; margins always and upper surface usually with typical phyllidia ***Sticta canariensis*** (cyanomorph)
(The cyanomorph of *S. canariensis* is easily characterized by the combination of strongly maculate upper surface and production of phyllidia)

Thallus with upper surface never strongly maculate; isidia most usually coralloid, never developing into typical phyllidia 3
- 3 Papillae on cyphella membrane 4

Papillae absent on cyphella membrane 5
- 4 Thallus rounded, monophyllous (and then typically mushroom-like) or with several rounded lobes, hardly dissected, dark brown, rarely pale greyish; margin typically involute, rarely sparsely ciliate on regenerating lobules; thallus rather robust; papillae on cyphella membrane few per cell; apothecia unknown ***Sticta fuliginoides***
(*S. fuliginoides* almost always have an involute margin and mushroom-like habitus when young)

Thallus rounded to palmate, with lobes rounded (when young) to truncate (when old), dark dull brownish, lead grey or pale greyish; margin usually not involute, most usually ciliate, especially when young; thallus very fragile and easily broken when dry; papillae on cyphella membrane numerous per cell, easily seen in fresh material; apothecia present in well-developed specimens, typically ciliate ***Sticta ciliata***
(*S. ciliata* is easily recognized by its fragile and irregular thallus with marginal cilia; it is the only fertile species amongst all cyanomorphic species of *Sticta* in Europe)
- 5 Thallus distinctly branched, almost always dichotomously, typically glossy; lobes involute, shallowing and usually with ascending margins; lower surface usually dark, especially towards the centre, strongly contrasting with the white cyphellae ***Sticta sylvatica***
(*S. sylvatica* typically have dichotomously branched thallus, with involute lobes and a black lower surface)

Thallus not distinctly branched, although lobes can be lacerate or dissected, not typically glossy; lobes rounded, not shallowing; lower surface usually pale, or brownish, not strongly contrasting with the white cyphellae 6
- 6 Lobes surface with distinct swellings, irregular in shape but always present, with isidia developing on their up- per parts ***Sticta atlantica***
(*S. atlantica* has small and irregular swellings on its upper surface and isidia develop on them)

Lobes surface with no or irregular swellings, but rather typically reticulate or scrobiculate, and isidia developing on the edges of these dimples ***Sticta fuliginosa***
(*S. fuliginosa* has no straightforward diagnostic character and can be recognized because it does not have the diagnostic ones of others: no cilia, no mushroom-like appearance, no swellings on upper surface, no dichotomously branched thallus and no papillae on cells of the cyphella membrane)