

**IIIE. Subg. Usnea Sect. Foveatae**

**Thallus never exactly terete, + strongly foveolate or scrobiculate (pitted, furrowed or excavated); soft, rather limp,**

Thallus strongly irregularly branched; branches always strongly irregularly curved; surface pale (to sometimes dark) greenish, at most finally brownish in herbarium, without papillae (but sometimes corrugated, with soralia simulating papillae). Base often constricted but never rigid nor "broadly" darkened (but with some blackening in certain species). Cortex thin, soft; medulla white, thick, usually lax; axis rather thin. Apothecia (if present) irregularly ciliate, often sublateral.

The more obviously and strongly foveolatescrobiculate members of this section are quite distinctive, but some species can sometimes be confused with other groups.

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**IIIE1.**

**Thallus long (to 30 cm or more),  
much longer than wide, pendulous.**

Branches slender, often threadlike. With few branchlets, esorediate, straw yellow to pale green, darkening in the herbarium, irregularly dichotomously branching, the branches to 1 mm diam., at least the thicker branches distinctively foveolate pitted, sometimes bluntly angled, more or less articulate fractured. CMA 3050:180200:240275 um. Medulla lax. Apothecia rare or occasional, to 5 mm diam.; margin thin, with few short or long fibrils; disc plane to convex, bare or slightly pruinose. On trees.

**1. Medulla K, P (usnic acid only).** Arcticboreal to temperate, northeastern and northcentral, with scattered populations southward in the west, to Mexico. .... U. cavernosa Tuck. ssp. cavernosa

**1. Medulla K+ red, P+ orange (salazinic acid).**

Alaska. .... U. cavernosa ssp. sibirica  
(Rsnen) Mot.

#### IIIE2.

Thallus short (under 15 cm), shrubby to subpendulous.

1. Thallus with large farinose soralia on very noticeable, crooked, deformed, coralloid branchlets. Thallus 1215 cm long, pendent. Deep dark green in Florida specimens, becoming dark olive to fuscous or dark red in herbarium, smooth and polished, shiny. Branches ± pitted or deformed; fibrils often abundant; Medulla lax, K+ dark red, P+ yellow (norstictic acid) and/or K, P? (galbinic acid aggregate). CMA 4060:200300:90120. On trees. Southeastern US. .... (see Stramineae: U. dimorpha)

1. Thallus isidiate, without coralloid branchlets. Thallus shorter, erect to subpendent. .... 2

2. Isidia very short, not spinulelike; soralia ± distinct or becoming confluent, almost farinose, giving the thallus surface a leprose appearance. Thallus suberect to subpendulous, to 8 cm long, rather firm, densely caespitose, from the base rather frequently dichotomously branched, pure pale green when fresh, often sparsely blackspotted (parasite?), matt. Basal part short, firm, rigid, thick, often blackened. Branches almost parallel, to 1.8 mm thick, attenuate towards tips, the major part 0.5-0.8 mm thick, not rarely irregularly subarticulate; primary branches irregularly areolate to subfoveolate, smooth at base, ± terete but often sculptured or acutely rugulose. Upper part of branches sorediate; tips obtuse. Fibrils few or absent. Frequently subtly "variolose" leprose, because of soredia; soredia frequent, subtly isidiose, dispersed on upper parts of branches on rugulae, concolorous. CMA 40:200:250. Medulla white, lax, K. Apothecia unknown. On bark or wood of conifers. Arizona, New Mexico, Colorado, Wyoming, Montana; Maine, New Hampshire (in eastern N. America apparently intergrading with U. hirta). .... U. variolosa

2. Isidia long, very abundant, especially on upper part, giving characteristic shaggy spinulose appearance; distinct soralia not present. Thallus 14(8) cm long, almost as wide, shrubby or tufted, limp, very flaccid when wet. Main branches to 1 mm diam. All branches constricted and articulate basally (?secondary or tertiary branches not clearly constricted or fusiform according to Clerc, 1987); primary and secondary branches typically obtusely angular and deformed, with rather indistinct foveoles or depressions in the surface. Fibrils few or absent. Surface greygreen, yellowgreen or blackish gray. Without true papillae. Basal part not darkened. Medulla white, moderately to very lax, K, P (murolic acid) or rarely K+ yellow then red, P+ orange (norstictic and murolic acids). CMA 60:250300:250300. Apothecia

rare. On coniferous and deciduous trees, wood, and rarely rocks. Boreal to temperate, south to northeastern U.S. and Great Lakes area, and to Arizona and Mexico. U.

hirta. ..... 3

3. Thallus 3 cm or longer, loosely branched, with thickly ciliate sores in broad apical region. ....

U. hirta ssp. hirta

3. Thallus under 3 cm long, densely branched; lacking cilia; sores in narrow subapical zone. .... U. hirta

ssp. minutissima (Mer.) Mot.