

Vermilacinia Spjut & Hale
(LECANORALES: RAMALINACEAE)

After Spjut (1995), Bowler, et al. (1994),
Hale (1979), Hale & Cole (1988), and others

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Thallus divided into tubular or nearly flattened linear branches, the primary branches less than 5 to more than 20, variable in number for most species, fastigiate to loosely spreading from a non-pigmented holdfast, with or without black-carbonized bands. Soredia present in some species. Isidia absent or present, similar to acicular branchlets, in scattered aggregates from near the base to the apex, easily breaking off. Cortex consisting of a thin pliable gelatinous sheath 15-40(-85) μm thick, or a firm crust to 200 μm thick or more, with reticulate ridging, with or without distinct palisade lines of hyphae, or the cortical hyphae thickened and reticulate, the matrix often perforated. Medulla without chondroid strands; hyphae often in fascicles, or adhesive as a solid mass, or hyphae in a net throughout the medulla; fascicled hyphae longitudinally oriented, the fascicles short with the individual hypha cells spreading widely as if suspended within a hyphal net, or fascicles long with the hyphae closely and helically wrapped around each other similar to braided cords; solitary hyphae meeting at acute or right angles, often agglutinated together at the end of cells. Photobiont forming a distinct layer as spherical colonies of cells scattered to nearly continuous around the outer medulla.

Apothecia lateral to terminal, solitary to crowded. Disk same color as the thallus (yellowish-green), or commonly white or salmon-colored. Spores 8, but often appearing fewer by abortion, the mature spores numbering 4, or more often 5, straight or curved, 1(-3)-septate, opaque, (6-)8-15(-20) \times 2.5-5 μm .

Pycnidia developing along cortical ridges and often terminating a branch; fertile pycnidia turbinate, spherical or commonly reniform, 200-300 μm across, to 500 μm long, externally black-carbonized, rarely pale, internally colorless with distinct hyphae within a filmy sheath (as seen in colonial algae); sterile pycnidia with the hyphae gelatinized and colored red to orange, often enlarging to form irregular to regular elongated spots, or transverse bands; pycnidiosporophores erect from the base, with cruciate branching (bent sharply downward and upward and sideways in a zigzag manner, dividing dichotomously in various directions), occasionally with short transverse connections to other branches, slightly swollen at the tip; pycnosporos terminal, rod-shaped, generally 2-5 \times 0.5-2 μm .

Lichen constituents primarily terpenoids ([\pm]-16- α -hydroxykaurane, zeorin, unknowns); accessory constituents β -orcinol depsidones (norstictic, hypoprotocetraric, salazinic, psoromic acids), aliphatic products (bourgeanic acid), and unknowns often concentrated near the apex in apothecia; meta-

depsides (methyl-e,5-dichlorolecanorate) present in S. American species.
Usnic acid present or absent.

On rocks, soil, or branches in coastal fog deserts, Baja California to Washington (and British Columbia?).

A segregate from Niebla (see under that genus for distinctions).

1. Thallus sorediate, with capitate, ± bluish gray soralia. Surface of branches often black-spotted. Usually on bark (also on rocks according to Hale & Cole). Common in southern California, becoming much rarer northward, to Washington and British Columbia. V. cephalota (Tuck.) Spjut & Hale (syn. Niebla cephalota (Tuck.) Rundel & Bowler)

1. Thallus not sorediate Both California and Baja California, unless noted otherwise. 2

2. Corticolous. Mature branches round to irregular in cross-section, cracked, always extruding a white cottony substance with age. Apothecia rare. Medulla K-, C-, P- (fatty acids). V. ceruchis (Ach.) Spjut & Hale (syn. Niebla ceruchis (Ach.) Rundel & Bowler)

2. Saxicolous. Mature branches ± cylindrical. Mature thallus caespitose; blades short (3 cm). Thallus spongy (compressible); branch tips blunt. Medulla P+ red (salazinic acid). V. robusta (Howe) Spjut & Hale (syn. Niebla robusta (Howe) Rundel & Bowler)

V. cephalota (Tuck.) Spjut & Hale

Thallus sorediate, with capitate, \pm bluish gray soralia, tufted, small (mostly to 3 cm long); branches to ca. 1 mm diam., \pm terete, greenish yellow, often black-spotted. Usually on bark (also on rocks according to Hale & Cole). Common in southern California, becoming much rarer northward, to Washington and British Columbia.

V. ceruchis (Ach.) Spjut & Hale

Thallus tufted, 2-4.5 cm tall. Mature branches round to irregular in cross-section, not inflated, 0.5-1 mm wide; surface greenish yellow, sometimes black-spotted, cracked, always extruding a white cottony substance with age. Apothecia rare, mostly lateral, 1-3 mm wide; disk greenish yellow, pruinose. Medulla K-, C-, P- (fatty acids). Usually on twigs along the seashore or in coastal scrub near sea level. California and Baja California. Also reported from Washington by Fink and others, but those reports are almost certainly based on "Ramalina ceruchis f. cephalota" (= Niebla cephalota), which was lumped under this species by Fink. Large lacunose forms from Baja California have been called Desmazieria testudinaria.

V. robusta (Howe) Spjut & Hale

Thallus spongy (compressible); branch tips blunt. Branches inflated, rounded. Apothecia larger, urn-shaped. Spores 10-12 μ m. Medulla P+ red (salazinic acid). California and Baja California.

Literature

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Spjut, R. W. 1996? (in press). Niebla and Vermilacinia (Ramalinaceae) from California and Baja California. *Sida Miscell.* [not seen]