

Nomenclatural novelties : S.D. Adams, N. Siegel, D. Bojantchev, K. Liimatainen & T. Niskanen

*Calonarius flavipavonius* S.D. Adams, Bojantchev, N. Siegel, Liimat. & Niskanen, sp. nov.

IF 900125

Holotype WTU F-075679

Diagnosis: Pileus 30–150 (–200) mm broad, convex to broadly convex, margin inrolled when young, remaining persistently down-curved through development, plane to uplifted and often undulating in age; surface viscid, glabrous; colors variable, rosy brown to rusty red-brown over disc to lilac towards margin, margin often with yellow glutinous veil, becoming ochre to vinaceous-brown in age. Lamellae narrowly adnate, close to crowded, moderately narrow; pale citrine yellow to yellow-olive when in button stage, soon yellow-clay colored, becoming light olivaceous brown as spores mature. Stipe 25–65 (75–) x 11–20 (–40) mm thick at apex, cylindrical to clavate to basal bulb; bulb rimmed and obliquely angled, (15–) 20–40 mm thick at widest part, covered with abundant cortina fibrils; off white, or blushed lilac to yellow at apex, covered with glutinous veil remnants. Cortina thick, cobwebby, pale yellow to whitish, leaving a thick annular zone on stipe. Flesh thick, firm, off-white to pale citron yellow, often with violet tones under cap cuticle and in bulb, developing yellow tones in stipe with age. Odor and taste indistinct. KOH deep maroon-red on cap and stipe base, slight purple on flesh near cap surface, and pale maroon purple in stipe base. Basidiospores (290 spores, 10 collections), (8.5–) 9–11 (–11.5) x (4.5–) 5.0–6.5 (–7.0)  $\mu\text{m}$ , avg. 9.95 x 5.84  $\mu\text{m}$ , Qr 1.47–2.02, Qa 1.71, citriform, moderately verrucose. Basidia 27–40 x 6.5–11  $\mu\text{m}$ , avg. 34.1 x 8.64  $\mu\text{m}$ , clavate, 4-spored. Pileipellis a duplex, a gelatinized layer of smooth to encrusted hyphae, 1.5–5.0  $\mu\text{m}$  wide, with prominent clamp connections, pinkish buff to lilac in KOH, below this, a layer of  $\pm$  cylindrical, interwoven hyphae grades into context, yellow, strongly pigmented lilac with oxidation in 3% KOH mounts. Exsiccata pileus brick red, stipe pale gray to cream.

Ecology and distribution: Solitary, scattered to gregarious on soil in conifer forests with *Pseudotsuga menziesii*, *Tsuga* spp., *Abies* spp., and *Picea* spp. in western North America. Producing basidiomata in autumn.

Specimens examined: USA. California. Sonoma County: Salt Point State Park, 0.5 mi. North of Hwy 1 (38.562862, -123.303346), under *Notholithocarpus densiflorus*, *Pinus muricata*, and *Pseudotsuga menziesii*, 20 Nov. 2009, D. Bojantchev, DBB26900, (WTU F-075685), GenBank OP739493. Tuolumne County: Yosemite National Park, off Tioga Pass Rd (37.812104, -119.527802), elev. 8110 ft, under *Pinus ponderosa*, *Abies concolor*, *A. magnifica*, and *Pseudotsuga menziesii*, 15 Oct. 2011, DBB46560, (WTU F-075687), GenBank OP799362. Montana: Lincoln County, Cabinet Mountains, off NF-278 Rd (48.202832, -115.578927), elev. 3553 ft. under *Picea sitchensis*, *Picea engelmannii*, *Pseudotsuga menziesii*, *Tsuga mertensiana*, 2 Oct. 2010, D. Bojantchev, DBB37369 (WTU F-075684), GenBank OP799363. Oregon, Hood River, Clear Lake turn-out from Hwy 126 (McKenzie Hwy) on approach to lake, by roadway with *Pseudotsuga menziesii*, *Tsuga heterophylla* and *Abies* spp. 13 Oct. 2019, S.D. Adams, SDA605, (WTU F-075680), GenBank OP739487. Washington, Chelan Co., Rainy Pass, trail to Lake Ann, 25 Sept. 2019, SDA562, (WTU F-075683), GenBank OP739488. King Co., Forest road 6830 spur, 0.4 mi before Tonga Ridge Trailhead, in young conifer forest of *Abies amabilis*, *Abies lasiocarpa*, *Tsuga heterophylla*, and *Tsuga mertensiana*, 8 Oct. 2018, S.D. Adams, SDA351, (WTU F-075678), GenBank OP739490. 9 Oct. 2018, N. Siegel, NS3337, (WTU F-075682), GenBank OP739492. 13 Oct. 2018, S.D. Adams, SDA373, (Holotype), GenBank OP739489. Pierce Co., Eatonville, Charles Lathrop Pack Experimental and Demonstration Forest, Regeneration Trail. 10 Oct. 2014, NAMA 2014-369 (as

*C. mikedavisii*, (C0294349F), GenBank OP748992. Forest Road 45-10, Soda Springs Campground, mature conifer forest under *Pseudotsuga menziesii*, *Tsuga heterophylla*, and *Abies* spp. 23 Sept. 2018, S.D. Adams, SDA345, (WTU F-075677), GenBank OP739491. Mt. Baker-Snoqualmie National Forest, Buck Creek, mature conifer forest under *Pseudotsuga menziesii*, *Tsuga heterophylla* and *Abies* spp. 25 Oct. 2019, S.D. Adams, SDA652, (WTU F-075681), GenBank OP739486.

Etymology: *Flavi* refers to the predominant yellow colors, *pavo* for peacock referring to the range of secondary colors it exhibits.

Notes: *Calonarius flavipavonius* is in subgenus *Calonarius*, section *Calonarius*. The general position is in the *cedretorum* clade and based on phylogenetic analysis it is rather isolated. The closest relatives are *C. luteolus* and *C. odorifer* with approximately 95.6% and 95.2% similarity, respectively, and more than 20 base pair differences. Another somewhat closely related species, based on Genbank BLAST matching, is the sequestrate *C. saxamontanus* with 96.36% similarity. The colors of mature specimens show similarity to *Calonarius cupreorufus* but differ in the presences of rosy brown and lilac colors in young fruitbodies, a maroon KOH reaction, and glutinous yellow veil. *Calonarius cupreorufus* gills are a distinctive sulfur yellow, versus a paler citron yellow to yellow-olive in *Calonarius flavipavonius*. *Calonarius flavipavonius* also shows some similarity to *Calonarius cacodes* which lacks the maroon KOH reaction and the yellow coloration to young basidocarps.

*Calonarius aglaeus* S.D. Adams, Bojantchev & N. Siegel, sp. nov.

IF 900154

Holotype WTU F-075686

Diagnosis: Pileus 30–70 mm wide, convex to plane, slightly uplifted in age, surface thinly viscid, with adhering debris, appressed-fibrillose over margin. Pale straw yellow, ochre-yellow to ochre-brown when young, soon dingy ochre-yellow, ochre brown to tawny brown or wood brown in age. Context white to off-white, mottled with beige, tan to ochre above lamellae and base of stipe. Lamellae adnexed to adnate, close, narrow. Pallid or argillaceous with a pink to lilaceous cast when young, becoming grayish to grayish brown. Stipe 25–53 mm long, 9–25 mm at apex, cylindrical to obliquely marginate bulb, base occasionally with white rhizomorphs, surface dry, with scattered cortina remnants. Off-white to creamy white, soon showing yellow-brown staining. Cortina scant, yellow, leaving an evanescent band on stipe. Odor indistinct, taste mild. KOH orange-brown on cap, light-brown on stipe context. Exsicata brown to yellow-ochre, stipe context paler. Basidiospores (68/3 collections) 9.5–12 x 5–6  $\mu\text{m}$ , avg. 10.5 x 5.5  $\mu\text{m}$ , Qr. 1.65–2.10, Qa 1.90, citriform to amygdaliform, lightly to moderately verrucose. Basidia 28–38  $\mu\text{m}$  x 7–9  $\mu\text{m}$ , 4-spored, clavate, clamped at base. Pileipellis simplex; epicutis well developed, cylindrical hyphae 2.5–8  $\mu\text{m}$  wide, in a gelatinous matrix, yellowish to colorless, finely encrusted to smooth, clamped. Hypocutis strongly pigmented, yellowish-brown, composed of interwoven, more or less radially arranged, clamped hyphae.

Ecology and distribution: Scattered and clustered in moss-covered gravelly soil, in conifer forest of *Abies amabilis*, *Abies lasiocarpa*, *Tsuga heterophylla*, *Tsuga mertensiana*, and *Pinus ponderosa* in western North America.

Specimens examined: USA, California, Tuolumne Co., Yosemite National Park, off Hwy 120 (37°49.03', -119°42.71'), elev. ~7000 ft, under *Abies concolor*, *Abies magnifica*, *Pseudotsuga menziesii*, and *Pinus ponderosa*, 15 Nov. 2011, D. Bojantchev, DBB46450 (WTU F-075688), GenBank OP799361. Washington, King Co., Forest road 6830 spur, 0.6 mi before Tonga Ridge Trailhead (47.685071, -121.262610). In young conifer forest of *Abies amabilis*, *Abies lasiocarpa*, *Tsuga heterophylla*, and *Tsuga mertensiana*. 8 Oct. 2018, N. Siegel, NS3318 (WTU F-075671), GenBank OP799360. 13 Oct. 2018, S. Adams, SDA 362 (Holotype), GenBank OP799359.

**Etymology:** The specific epithet derives from the Greek name *Aglaia*, meaning splendid, beautiful or bright, referring to the lilac to pink blush on young gills of this species.

**Notes:** *Calonarius aglaeus* is in subgenus *Fulvi*, section *Splendentes* (Liimatainen et al. 2022). The closest relative of *C. aglaeus* in Genbank is *C. alnobetulae* with approximate similarity of 96.14% and 17 base pair differences. Based on phylogenetic analysis, *C. aureocalceolatus* is another related species with approximate similarity of 94.36% and more than 22 base pair differences. *Calonarius aglaeus* resembles *C. alnobetulae* in the pink to lilaceous young gills, whitish context and marginate bulb. However, *C. aglaeus* exhibits more yellow-brown tones on pileus. Additionally, it has an orange-brown rather than blackish-brown KOH reaction on the pileus.

*Cortinarius olsoniae* N. Siegel, S.D. Adams & Bojantchev, sp. nov.

IF 900155

Holotype WTU F-075672

**Diagnosis:** Pileus 20–80 mm broad, conical when young, becoming broadly conical to convex, often with a low, broad umbo, margin inrolled, often squared off when young, becoming down-curved to plane, then wavy and occasionally uplifted in age. Surface smooth, shiny, moist to slightly viscid when wet; dull, appressed-fibrillose when dry, strongly hygrophanous. Color extremely variable; when wet deep purple, becoming silvery purple and finally purplish tan to purple-brown, in dry conditions: silvery blue to bluish purple with appressed silvery fibrils, becoming bluish tan to purplish tan and finally grayish tan. Lamellae adnate to slightly adnexed, close to moderately crowded, broad. Beige at first, becoming cinnamon tan and then darker ocher-brown as spores mature. Stipe 40–140 x 5–15 mm, equal or slightly enlarged downward, then with a tapered, “rooting” base; surface dry to slightly moist, covered with silky fibrils when young, smooth in age; whitish with a band of violet or bluish color below partial veil, developing dingy tan stains in age. Cortina thin, sparse, binding to cap margin and leaving a silky annular zone of whitish fibrils on stipe. Context thin, brittle, purplish to purple-brown in cap; stipe fibrous, solid to stuffed, tan. Odor and taste indistinct. KOH no reaction. Spore deposit rusty brown. Basidiospores (120/4 collections) (8.5–) 8.5–11 (–12) x (4.5–) 5–6.5 (–7)  $\mu\text{m}$ , avg. 9.86 x 5.74  $\mu\text{m}$ , Qr 1.45–2.06, Qa 1.72, weakly roughened to nearly smooth. Basidia 24–36 (–41) x (6–) 7–10  $\mu\text{m}$ , cylindrical-clavate, hyaline, 4-spored. Pileipellis composed of periclinal hyphae 3.5–8  $\mu\text{m}$ . Septa with clamps. Ecology and distribution: solitary or scattered on ground in coastal *Picea sitchensis* forests. Fruiting in winter, after the primary fall season.

**Specimens examined:** USA: California, Humboldt Co., Redwood National Park, Davison Road, 1 km east of Gold Bluff Beach in *Picea sitchensis* forest; 19 Jan. 2013, N. Siegel, NS 01192013-1 (Holotype), GenBank OP748989. 1 Feb. 2016, N. Siegel, NS 02012016-1, (WTU F-075675), GenBank OP748990. 20 Jan. 2016, J. Olson JO-01, (WTU F-075673), GenBank OP748987. 9 Jan. 2018, J. Olson, JO-02, (WTU F-075674), GenBank OP748988.

**Etymology:** Named for Joann Olson, a *Cortinarius* enthusiast from Humboldt County, California, who first collected this species.

**Notes:** *Cortinarius olsoniae* is in Subgenus *Telamonia* Section *Bicolores*. Genetically the species is closest to *C. subcagei*, but has only 97% similarity to this species with 15 base pair differences. This beautiful winter-fruiting *Cortinarius* can look like two different species depending on the dryness of the fruiting conditions—markedly purple when wet, silvery blue when dry. In addition to the variable cap color, this species can be recognized by the pallid gills, somewhat rooting stipe with whitish or purplish blushes, and preference for fruiting late in the season. In Humboldt County, it produces basidiomata one-to-two months after most other *Cortinarius*. Appears quite rare: currently only known from a restricted range on the Pacific Coast, with *Picea sitchensis*.