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STUDIES IN NEOTROPICAL POLYPORES 11: ANTRODIA AURANTIA, A NEW SPECIES FROM THE DOMINICAN REPUBLIC, GREATER ANTILLES

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Abstract: *Antrodia aurantia* Lodge, Ryvarden & Perdomo-Sanchez is described as new. It has bright orange resupinate basidiomes that lack rhizomorphs and has pores that are deep, soft, large, and angular to sinuous; it is associated with a brown rot on *Pinus occidentalis*. A key to all American *Antrodia* and *Diplomitoporus* species is provided.

Keywords: *Antrodia radiculosa*, *Diplomitoporus*, Polyporaceae, *Pinus*, Hispaniola.

Introduction

Historically, the macrobasidiomycetes of the Dominican Republic on the island of Hispaniola have not been well studied (Ciferri 1929). Although polypores are the best represented group of macrobasidiomycetes in the historical records, Ciferri (1929) listed only 19 species of polypores from the Dominican Republic, including four species cited by Murrill (1915), but excluding synonyms and the dubious records indicated by Murrill and Ciferri. The Basidiomycetes of the Greater Antilles project has greatly increased our knowledge of fungi in the Dominican Republic, as more systematic collecting was conducted in different parts of the country over a period of four years. The mycota of the pine forests at high altitude in the interior part of the island is especially interesting because of its geographically isolated position. The Dominican Republic has the easternmost extent of native pine in the Caribbean,

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Pinus occidentalis Swartz. The majority of pine-inhabiting polypores in this area are more or less identical with those seen in the mainland, with dominance by species such as *Fomitopsis cajanderi* (P. Karst.) Kotl. & Pouzar, *F. pinicola* (Sw.:Fr.) P. Karst., *F. rosea* (Alb. & Schwein.) P. Karst., *Gloeophyllum carbonarium* (Berk. & M.A. Curtis) Ryvarden and *Antrodia heteromorpha* (Fr.) Donk. These are all well-known and widespread brown rot species on various gymnosperms.

Thus, it came as a surprise when a polypore with bright orange, widely effused, resupinate basidiomes and large angular pores was discovered on the lower surface of a brown-rotted pine log. An examination showed it to be dimittic in the thin context, consisting of skeletal hyphae and clamped generative hyphae, but monomittic (only generative hyphae present) in the tube trama. The dimittic context, smooth basidiospores that are unreactive with Melzer's reagent, together with the brown rot clearly indicated that *Antrodia* was the proper genus for this species. It did not match, however, any known American species of *Antrodia* (Gilbertson & Ryvarden 1986), nor did we find a suitable name when other literature was consulted (Bondarzew 1953; Murrill 1915; Nuñez & Ryvarden 2000; Ryvarden & Gilbertson 1993). We finally concluded that it represented a new species, which is described below.

Antrodia aurantia Lodge, Ryvarden & Perdomo-Sanchez *sp. nova* Figs. 1–2
Fructificatio resupinata, aurantia; pori angulati, 1 × 1–4 mm; tubi 7–20 mm longi, systema hypharum dimittica, tubi monomittica, hyphae generativae fibulatae, hyphae skeletales hyalinae, parietibus crassis vel subsolidae; basidiosporae ellipsoideae, non-dexhinoideae, 5.54.5 × 3–3.5 µm, consociatae in cariete brunnea in ligno.

Holotype: Dominican Republic, Cordillera Central, Santiago Prov., La Celestina, 550 m. a. s. l., 25 Nov 1999, on dead hunk of *Pinus occidentalis*, Leg. D.J. Lodge DR-51 (CFMR-DR 1044) in herb. JBSD; isotypes in CFMR and O.

Basidiomes annual, resupinate, effused and separable when dry, soft when fresh, fragile when dry; margin wide to narrow, cream to pale yellow or pale orange, cottony; pore surface deep orange when fresh, fading slightly when dry; pres daedaleoid, sinuous to angular. thin-walled, 1–4 mm wide; tubes 7–20 mm deep, tube walls fragile, thin and wavy, concolorous with pore surface; context conspicuously thin, cottony, fragile and up to 0.5 mm thick, taste slightly astringent and unpleasant.

Hyphal system dimittic; skeletal hyphae hyaline, thick-walled to solid, 3–4 µm in diameter, present only in the context; generative hyphae with clamps, thin-walled, richly to moderately branched, 2.5–5 µm in diameter. Only generative hyphae are present in the tube trama.

Cystidia none.

Basidia four-sterigmate, 20–28 × 4–6 µm, with a basal clamp.

Basidiospores ellipsoid, thin-walled, smooth, hyaline, non-amyloid, 5.5–7 × 3–4 µm.

Substrate. On dead hunks of *Pinus occidentalis*.

Distribution. Known only from montane forest, Dominican Republic.

Remarks. The strong orange color and the large, deep, soft, wavy, and irregular pores (Fig. 1) are good field characteristics for this species. *Antrodia radiculosa* (Peck) Gilbn. & Ryvarden is undoubtedly the closest relative, and it also has a bright

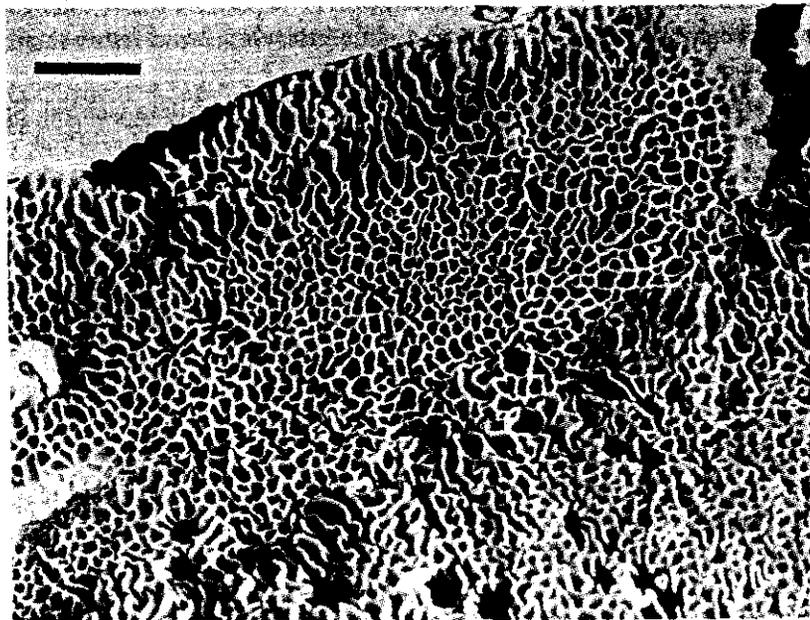


Fig. 1. *Antrodia aurantia* basidiome (holotype). Scale bar = 1 cm.

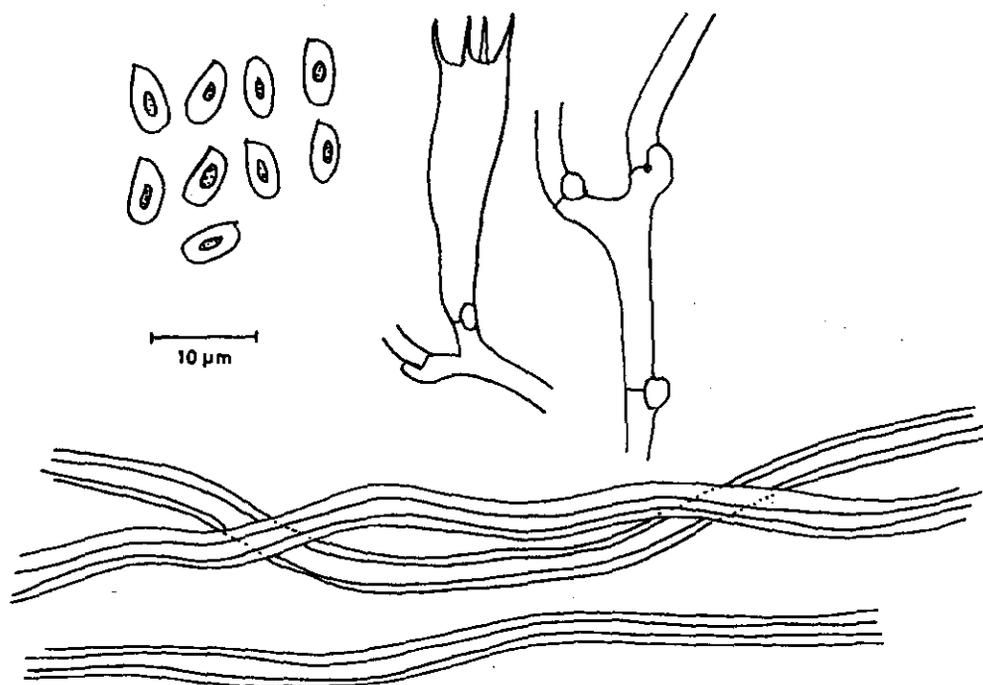


Fig. 2. *Antrodia aurantia* microstructures in 3% KOH (isotype): basidiospores, basidium, and generative hyphae (left to right above); skeletal hyphae from context (below). Scale bar = 10 μ m.

orange pore surface. However, as the name implies, it has a wide rhizomorphic margin, and it also differs in having smaller pores (3-4 per mm rather than 1-4 mm diameter). Furthermore, the tube trama is dimitic in *A. radiculosa* rather than monomitic as in *A. aurantia*.

Additional specimens examined. Dominican Republic, Cordillera Central, Santiago Prov., Rincon de Piedra, 850 m a. s. l., 19° 14' N, 70° 57' W, 24 Nov. 1999, on hard log (*Pinus occidentalis*) Leg. D.J. Lodge DR-34 (CFMR-DR 1027), CFMR, JBSD and O; Sierra de Baoruco, Perdonales Prov., 1375 m a. s. l., 18° 8' N, 71° 32' W, 11 Dec. 1997, Coll. O.P. Perdomo & S. A. Cantrell, Leg. OPP-207 (CFMR-DR 855), CFMR & JBSD.

Key to American species of *Antrodia* (A.) and *Diplomitoporus* (D.)

These two genera share the same microstructure but are separated by the type of rot, the former causing a brown rot and the latter causing a white rot. Both genera are included in the key to aid determination.

1. Spores generally longer than 7 μm 2
1. Spores generally shorter than 7 μm 8
2. Spores slightly fusiform with tapering apex 3
2. Spores cylindrical 4
3. Pores 4–6 per mm; mycelial felts conspicuous in decayed wood; on *Juniperus* **A. ferox**
3. Pores 2–3 per mm; mycelial felts not conspicuous, on other genera **A. serialis**
4. Causing a heartrot in living *Juniperus*; pores large, daedaleoid **A. juniperina**
4. Causing a decay of dead wood or dead branches; pores circular to angular 5
5. Pore surface pale brown 6
5. Pore surface white to cream 7
6. On angiosperms **A. malicola**
6. On gymnosperms in spruce–fir ecosystems **A. variiformis**
7. Pores 2–3 per mm; on angiosperms and dead branches of *Juniperus* **A. albida**
7. Pores 1–2 per mm; commonly on dead gymnosperms, occasionally on angiosperms **A. heteromorpha**
8. Spores ellipsoid 9
8. Spores cylindrical to allantoid 14
9. Pore surface yellowish to orange 10
9. Pore surface white to pale sordid brown 11
10. Pores irregular to angular, 1-4 mm wide; margin non-rhizomorphic; trama of generative hyphae only; known only from the Dominican Republic **A. aurantia**
10. Pores more or less round to angular, 3-4 per mm; margin strongly rhizomorphic; trama with both generative and skeletal hyphae; widespread in North America **A. radiculosa**

11. Basidiomes brittle when dry; pore surface pale sordid brown when dry; tubes as if partly soaked with resin..... 12
11. Basidiomes hard to soft and cottony when dry; pore surface cream to white 13
12. Spores ellipsoid, $4.5-6 \times 2.5 \mu\text{m}$ **A. gossypina**
12. Spores oval $5.5-7 \times 3.5-5 \mu\text{m}$ **D. overholtsii**
13. Context crumbly to cheesy; rhizomorphs absent; cystidioles usually abundantly present **A. crassa**
13. Context cottony-soft; rhizomorphs usually present; cystidioles absent to rare **A. vaillantii**
14. Spores $2-3 \mu\text{m}$ wide 15
14. Spores $1-2 \mu\text{m}$ wide 18
15. Skeletal hyphae strongly amyloid..... **A. carbonica**
- IS. Skeletal hyphae non-amyloid 16
16. Spores slightly fusoid; pore surface pale sordid brown when dry; tubes brittle; on angiosperms **A. oleracea**
16. Spores cylindrical - allantoid; pore surface pale cream to straw colored; on gymnosperms 17
17. Spores $5-7 \mu\text{m}$ long, allantoid; pores 3-4 per mm **D. crustulinus**
17. Spores $4.5-5 \mu\text{m}$ long, cylindrical, pores 5-7 per mm **A. sitchensis**
18. Pores 1-3 per mm, irregular, sinuous; dissepiments lacerate **A. sinuosa**
18. Pores 3-7 per mm, angular to round; dissepiments entire 19
19. Spores $1.5-2 \mu\text{m}$ wide 20
19. Spores $1-1.5 \mu\text{m}$ wide..... 23
20. On *Juniperus*; tubular, smooth projecting cystidia present **D. rimosus**
20. On other hosts; cystidia absent, but non-projecting pointed cystidiols may occur scattered among the basidia.....21
21. Pore surface white with reddish brown spots; a thin brown zone present in the context next to the substrate..... **A. albobrunnea**
21. Pore surface grayish, cream, pale straw colored; context white without a brown zone next to the substrate 22
22. Pore surface white to greyish; skeletal hyphae partly dissolved in KOH; spores $5-7 \mu\text{m}$ long **D. lindbladii**
22. Pore surface white to straw colored or sordid brown; skeletal hyphae not dissolved in KOH; spores $4-5 \mu\text{m}$ long**A. sordida**
23. Pore surface cream to citric yellow when fresh; no strong odor of garlic in fresh condition; species with strongly cracked pore surface belong here24
23. Pore surface white to pale sordid brown; strong odor of garlic in fresh condition **A. odora**
24. Pores 5-7 per mm; no reaction with KOH..... **A. xantha**
24. Pores 2-5 per mm; reddish with KOH..... **A. alpina**

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