

SHORT COMMUNICATION

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Validation of *Aseroë coccinea* (Phallales, Phallaceae)

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Abstract *Aseroë coccinea*, an invalid name for a Japanese phalloid, is formally validated. Morphological features of *A. coccinea* are described and illustrated. This fungus is well distinguishable from the other known species of *Aseroë* by 7–9 bright red arms dispersed radially on the apex of the receptacle, not bifurcating but simple, and consisting of a single tubulate chamber.

Key words *Aseroë coccinea* · Japan · *Nom. inval.* · Validation

The pantropical phalloid genus, *Aseroë* Labill., is morphologically characterized by arms attached to the apical margin of the receptacle and diverging with free tips; its gleba is located on the upper surface of the disc on arms or both (Dring 1980). Three species, *A. arachnoidea* E. Fisch., *A. floriformis* Baseia et Calonge, and *A. rubra* Labill., have previously been reported from the world (Dring 1980; Baseia and Calonge 2005). In this article, I add *A. coccinea* Imazeki et Yoshimi ex Kasuya as the fourth species from Japan in the genus. This fungus was first introduced in the literature as a new species of *Aseroë* by Yoshimi and Hongo (1989) under a provisional name, *A. coccinea* Imazeki et Yoshimi (as “ad interim”), with a brief Japanese description and colored illustration. Unfortunately, *A. coccinea* has not been validly published since then, and the name still remains invalid [Art. 36.1 of the International Code of Botanical Nomenclature (ICBN); McNeill et al. 2006]. I agree with Imazeki and Yoshimi (in Yoshimi and Hongo 1989), who recognize the fungus as a good species in *Aseroë*; hence, the name is validated here providing a Latin description and designating the type. A more comprehensive description is also given based on my observations on the type.

The specimen examined in this study is deposited in the herbarium of National Museum of Nature and Science, Tokyo (TNS). Macroscopic characters were described by observations on dried material under a stereo microscope. For light microscopic observations, free-hand sections of gleba and peridium were mounted in water and 1% (w/v) cotton-blue lactophenol on glass slides. Forty randomly selected basidiospores were measured under a light microscope at 1000× magnification.

Aseroë coccinea Imazeki et Yoshimi ex Kasuya, sp. nov.

Figs. 1–6

Pro. syn.: *Aseroë coccinea* Imazeki et Yoshimi, in Yoshimi and Hongo, Colored illustrations of mushrooms of Japan Vol. II:218, fig. 900, 1989 (*nom. inval.*, as “ad interim”).

Ovo subglobose vel ovoideo, 10–15 mm diametro, epigaeo, albo; gleba olivaceo-brunnea vel viridescens-nigra, mucosa, foetida, supra discum receptaculi tegenti; receptaculo pseudostipite 10–15 mm alto ad apicem 7–15 mm lato formanti, cylindrico, subfusoido vel ad basim angustato, superne pallide persicino, infra albo-cremeo, spongioso, fragili, apice disco deplanato formanti, margine pedunculati; brachiis 7–9, angustatis, ex loculo tubulato singulari, 4–10 mm altis, 0.7–2 mm latis, coccineis, non bifurcatis, denique admodum expansis; basidiosporis ellipsoideis vel cylindraceis, 4–5 × 2–2.5 μm, interdum basaliter truncatis, pachydermis, superficie laevis, hyalinis.

Holotypus: TNS-F-243742, Utsunomiya-shi, Tochigi in Japonia, Sept. 29, 1985, M. Hagiwara leg., in Herbario fungorum in TNS conservatus.

Etymology: From the Latin *coccineus* = bright red, referring to the color of arms of receptacle.

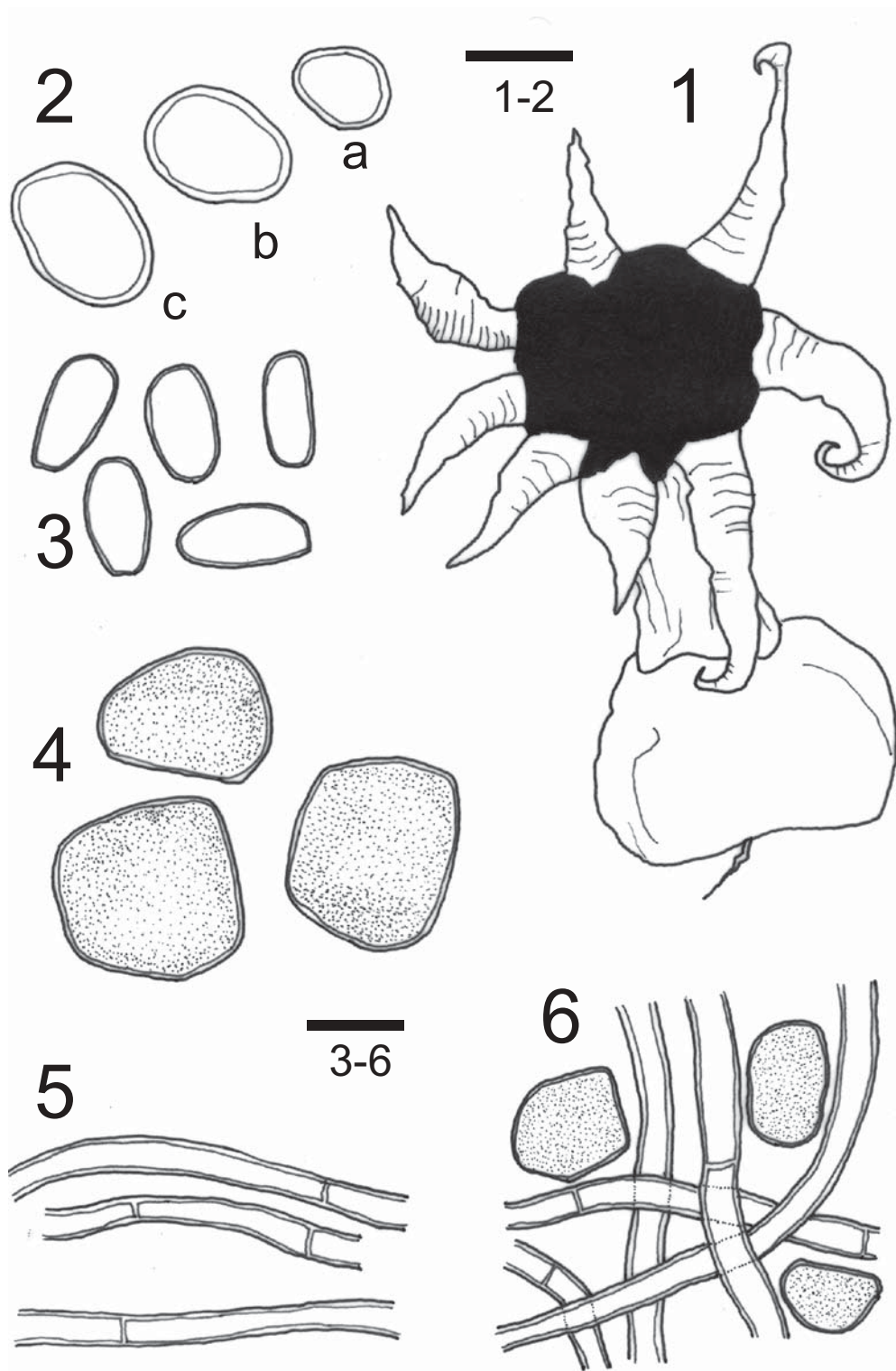
Egg subglobose to ovoid, 10–15 mm in diameter, epigeal, white, arising from a white mycelial strand. Peridium white to cream, surface fibrous, inner membranous, with hyaline, gelatinous endoperidium. Gleba olivaceous-brown to greenish-black, mucous, with a slightly fetid odor, covering upper surface of a disc of the receptacle. Receptacle forming a pseudostipe, 10–15 mm tall, 7–15 mm in diameter at apex, cylindrical, subfusoid or tapering toward the base, pale pink

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Figs. 1–6. *Aseroë coccinea* (TNS-F-243742, holotype).

1 Mature basidioma. **2** Vertical sectioned arms of receptacle (a, near apex; b, middle part; c, near base). **3** Basidiospores. **4** Pseudoparenchymatous cells of receptacle. **5** Filamentous hyphae of inner layer of peridium. **6** Filamentous hyphae and pseudoparenchymatous cells of outer layer of peridium. Bars 1 5 mm; 2 1 mm; 3 3 μ m; 4 5 μ m; 5–6 10 μ m



at upper part, white to cream at base, spongy, hollow; apex flattened to form a disc bearing 7–9, narrow, tapering arms, which consist of a single tubulate chamber, 4–10 mm long, 0.7–2 mm thick, bright red, not bifurcating, fully expanded at maturity.

Basidiospores ellipsoid to cylindrical, 4–5 \times 2–2.5 μ m, surface smooth, sometimes truncate at base, thick-walled, hyaline. Basidia not observed. Peridium divided into two layers; outer one up to 250–400 μ m thick, composed of filamentous hyphae, 2.5–5 μ m in diameter, elongate, inter-

woven, septate, thick-walled, hyaline, and pseudoparenchymatous with cells 7–50 µm thick, globose to subglobose, thick-walled, yellowish-brown to pale brown; inner one up to 100–250 µm thick, composed of filamentous hyphae 2–5 µm in diameter, elongate, subparallel, septate, thick-walled, hyaline. Receptacle consists of pseudoparenchymatous cells 5–15.5 µm broad, globose to subglobose, thick-walled, with intracellular pigment.

Habitat: Gregarious or solitary on rice hulls, straw, or dung; summer to autumn (Yoshimi and Hongo 1989).

Distribution: Known only from warm-temperate area of Japan (Tochigi Pref.).

Type specimen: Japan, Tochigi Pref., Utsunomiya-shi, September 29, 1985, M. Hagiwara, TNS-F-243742 (holotype).

Japanese name: Aka-hitode-take.

Aseroë coccinea is well characterized by the 7–9 bright red arms dispersed radially on the apex of the receptacle, not bifurcating but simple, and consisting of a single tubulate chamber. There are three other known species of *Aseroë*: (1) *A. rubra*, a pantropical species but sometimes also occurring in Europe and temperate Asia (Ito 1959; Dring 1964, 1980; Yoshimi and Hongo 1989; Spooner 1994), having a reddish receptacle bearing arms, each usually bifurcating and consisting of several rows of chambers (Ulbrich 1929; Dring 1980); (2) *A. arachnoidea*, known from Asia and West Africa, and distinguished by its white receptacle with single-chambered arms (Fischer 1890; Boedijn 1932; Kobayasi 1938; Ito 1959; Dring 1964, 1980; Yoshimi and Hongo 1989); (3) *A. floriformis*, known only from the sand dunes of Brazil and with a sunflower-shaped, raspberry-colored receptacle lacking radiating arms (Baseia and Calonge 2005).

Aseroë coccinea is morphologically closest to *A. arachnoidea* by its nonbifurcating, single-chambered arms. However, *A. coccinea* is well distinguished from *A. arachnoidea* by its larger, ellipsoid to cylindrical basidiospores (4–5 × 2.5–3 µm in *A. coccinea* vs. 2.5–3.5 × 1.5 µm in *A. arachnoidea*; Dring 1980) and the bright red arms. From India, Narasimhan (1932) recorded an anomalous specimen of *A. arachnoidea* that had single-chambered, cochineal red arms. Although the Indian fungus shares some taxonomic features with *A. coccinea*, further study is required to clarify their relationship.

Key to the species of *Aseroë*

1. Receptacle with arms on apical margin. 2
- 1'. Receptacle without arms *A. floriformis*
2. Arms single-chambered, not bifurcate. 3
- 2'. Arms multi-chambered, usually bifurcate *A. rubra*
3. Arms white, basidiospores 2.5–3.5 × 1.5 µm
. *A. arachnoidea*
- 3'. Arms bright red, basidiospores 4–5 × 2.5–3 µm.
. *A. coccinea*

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