LEPIOTA VIRIDITINCTA (BERK. & BROOME) SACC.: A SPECIES FROM BALI WITH GREY-GREEN COLOUR CHANGING WHEN DRIED

Atik Retnowati
Herbarium Bogoriense
Botany Division, Research Center for Biology
Indonesian Institute of Sciences
Correspondence: atik.retnowati@lipi.go.id

Atik Retnowati. 2015. *Lepiota viriditincta* (Berk. & Broome) Sacc.: Jenis dari Bali dengan Perubahan Warna Abu-abu-hijau ketika Kering. *Floribunda* 5(3): 111–113. — *Lepiota viriditincta* (Berk. & Broome) Sacc. merupakan jenis *Lepiota* yang dicirikan dengan adanya perubahan warna badan buah menjadi abu-abu hijau setelah dikeringkan. Jenis *Lepiota* ini dikoleksi dari Bali sebagai rekaman baru untuk Bali. Deskripsi, foto, dan ilustrasi *L. viriditincta* disertakan dalam tulisan ini.

Kata kunci: *Lepiota*, perubahan warna, Bali.

Atik Retnowati. 2015. *Lepiota viriditincta* (Berk. & Broome) Sacc.: A Species from Bali with Grey-green Colour Changing when Dried. *Floribunda* 5(3): 111–113. — *Lepiota viriditincta* (Berk. & Broome) Sacc., a species which turns grey-green when dried, was collected from Bali. Description, images, and line drawing are provided for this newly recorded mycobiota from Indonesia.

Keywords: *Lepiota*, colour changing, Bali.

Lepiota (Pers.: Fr.) S.F. Gray sensu stricto contains more than 400 described species (Kirk *et al.* 2008). It is a cosmoplitan genus, but the majority of its species come from tropical and subtropical areas (Singer 1986). The important characters of *Lepiota* are pileus small to medium size, pileus and stipe cleanly separable, with free lamellae, some changing to reddish or brownish upon bruishing, annulus present, spores white, lacking germ pore, and walls not metachromatic in cresyl blue (Largent 1973).

Sysouphanthong *et al.* (2011) reported the occurence of 126 species of *Lepiota* in Asia (China, India, Indonesia, Japan, North and South Korea, Philippines, Singapore, Sri Lanka, Thailand, Vietnam and Papua New Guinea). Four species of them were from Indonesia, namely *L. celebica* Henn., *L. flavophylla* Massee, *L. mammosa* Henn., and *L. verrucosa* Henn. Two additional species of *Lepiota* from Indonesia reported by van Overeem & van Overeem-de Haas (1922), namely *L. aurantiaca* Henn. and *L. conipes* Berk. Unlike those species, an additional Indonesian species, *L. viriditincta* (Berk. & Br.) Sacc. which has fruit bodies turning greyish green colour when dried is reported in this paper.

The changing colour of mushroom basidiome when bruished or dried is important character in taxonomy of lepiotaceous fungi (Liang *et al* 2010). It is usually caused by oxidation of the chemical coumpound by enzimes.

MATERIALS AND METHODS

Macro- and microscopic characters were described and illustrated based on fresh and dried fungal specimens collected from Ekakarya Botanical Garden, Bali. Microscopic observation was made in material mounted in 3% of KOH. Twenty five basidiospores were measured from collection. Colour notation was determined using Kornerup & Wancher (1978). Examined specimen is deposited in Herbarium Bogoriense (BO) of Botany Division, Research Center for Biology, Indonesian Institute of Sciences (LIPI).

RESULT AND DISCUSSION

Species Description

Lepiota viriditincta (Berk. & Broome) Sacc. (Figure 1 & 2)

Type: Sri Lanka, Peradeniya, Thwaites 1153 cum icon (type of *Agaricus viriditinctus* Berk. & Br.) (?)

Pileus 2.5 cm diam, plano convex with expanded umbo, surface covered with brown to dark brown (7F6–7E6) tomentose center, with no concolorous margin, whitis background with striation margin, dry, veil remnants none. Context white,

Figure 1. Colour changing of *L. viriditincta* basidiocarp after dried.

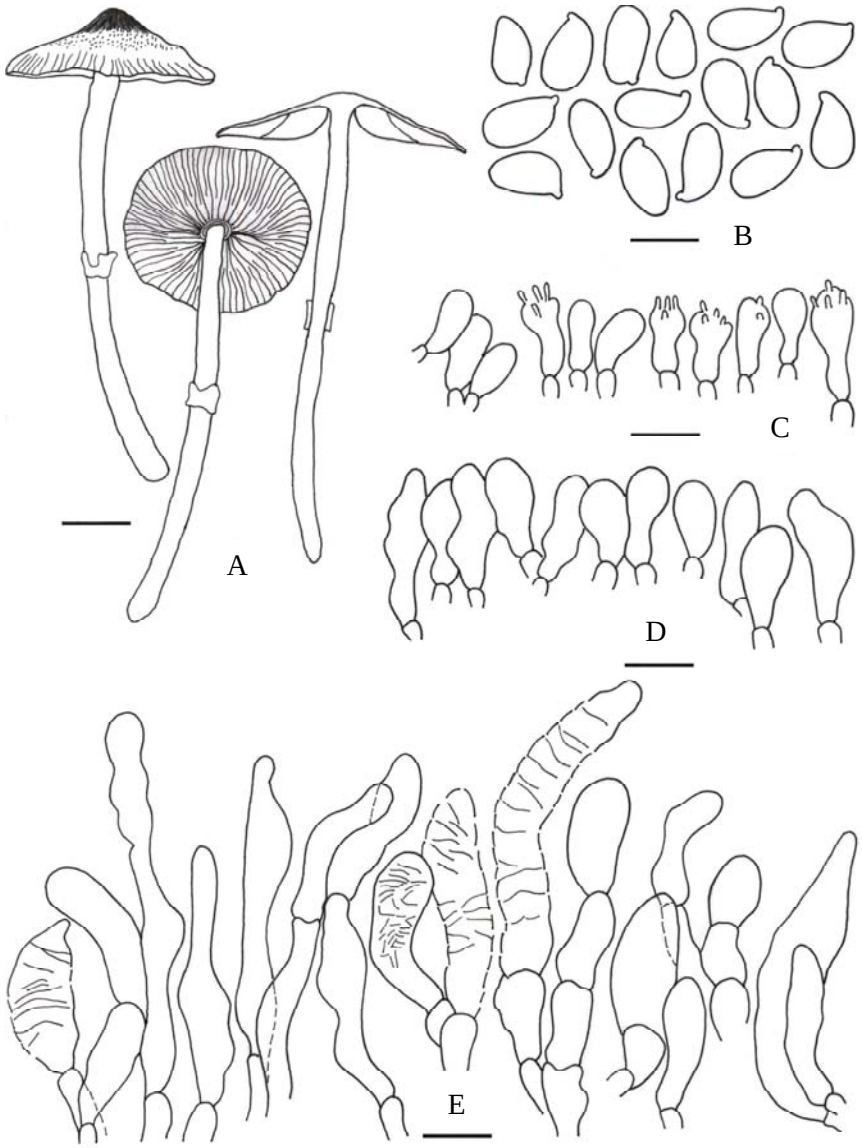

Figure 2. *L. viriditincta*: A. Basidiocarp; B. Basidiospores; C. Basidia-Basidioles; D. Cheilocystidia; and E. Pileipellis (scale bar: A = 0.8 cm; B = 8.7 µm; C, D and E = 21.6 µm).

thin, changing colour. Lamellae free, with 1 series of lamellulae, close (± 60 free lamellae), narrow, white. Stipe 5.6 x 0.25 cm, cylindrical, equal, solid, glabrous, basal mycelium absent, white. Annulus present, membranous, funnel shape, white. Flavor not recorded. Fruiting body turn greyish green (30C3-30C4) with darker disc when dried.

Basidiospores 8.0–10(10.5) x 4.0–5.0 µm ($\bar{x}$ = 9.2 ± 0.66 x 4.67 ± 0.30, Q = 1.67–2.60, q = 1.97 ± 0.22; n = 25 spores per 1 specimen), ellipsoid with suprahillar, without germ pore, hyaline, smooth, slightly thick-walled up to 0.8 µm, dextrinoid. Basidia 21.6–24 x 8.0–10.5 µm, clavate, 4-spored. Cheilocystidia 20–45.6 x 10.5–14.5 µm, fusoid, clavate to broadly clavate, smooth, thin walled, hyaline. Pleurocystidia absent. Pileipellis palisade with elongate cylindrical terminal elements, 40–136 x 10.5–32 µm, often brown incrusted, thin-walled, inamyloid; sphaerocyst present underneath, 19–27 x 13–24 µm, hyaline, thin-walled. Clamp connection absent.

Habit, habitat, and distribution. Solitary on soil. Bali.

Material examined. Indonesia, Bali, Ekakarya Botanical Garden, Tapak Hill, trail to Makam 7, collected and determined by A. Retnowati, AR 1027, 14 May 2013.

Notes

Lepiota viriditincta is characterized by its pileus brown to dark tomentose at the center which is covered with trichodermal palisade, with ellipsoid suprahillar spores, no clamp connection, and colour changing when dried.

Liang *et al.* (2010) transfered *L. viriditincta* to *Leucoagaricus* based on morphological and molecular traits. However, the Balinese material in this paper is retained in as *Lepiota viriditincta* following the Pegler (1986) who treated *Leucoagaricus* species from tropical areas as belonging to *Lepiota* or *Leucocoprinus*.

ACKNOWLEDGMENT

The author would like to thank Prof. Dr. Mien A. Rifai for his useful comments on this paper. This research was funded by the Government of Indonesia to do fieldwork in Bali.

REFERENCES

Kirk PM, Cannon PF, Minter DW & Stalpers JA. 2008. *Ainsworth and Bisby's Dictionary of the Fungi*. 10th ed. Wallingford, UK: CABI Publishing. 374 p.

Kornerup A & Wanscher JH. 1978. *Methuen handbook of colour*. 3rd ed. Eyre Methuen. London. 252 p.

Largent DL. 1973. *How to identify mushrooms to genus I: Macroscopic features*. Mad River Press Inc. California.

Liang JF, Yang ZL, Xu J & Ge ZW. 2010. Two new unusual *Leucoagaricus* species (*Agaricaceae*) from tropical China with blue-green staining reactions. *Mycologia* 102(5): 1141–1152.

Overeem C van & D van Overeem-de Haas. 1922. Verzeichnis der in Niederländisch Ost Indien bis dem Jahre 1920 gefundenen Myxomycetes, Fungi, und Lichens. *Bull. Jard. Bot. Buitenzorg* III, 4: 88–89.

Pegler DN. 1986. Agaric flora of Sri Lanka. *Kew Bull. Add. ser*. 12: 1–519.

Singer R. 1986. *The Agaricales in modern taxonomy*. Ed. 4. Koenigstein: Koeltz Scientific Books.

Sysouphanthong P, Hyde KD, Chukeatirote E & Vellinga EC. 2011. A review of genus *Lepiota* and its distribution in Asia. *Current Research in Environmental & Applied Mycology* 1(2): 161–176, Doi10.5943/cream/1/2/3.