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Floribunda merupakan organ resmi Penggalang Taksonomi Tumbuhan Indonesia, diterbitkan dua kali setahun dan menerbitkan makalah dalam bahasa Indonesia dan Inggris mengenai pelbagai gatra sistematika keanekaragaman flora Malesia pada umumnya dan Indonesia pada khususnya yang berasal dari hasil penelitian, pengamatan lapangan, pengalaman pribadi, telaahan bergagasan, dan tinjauan kritis.

Sidang Penyunting

Ketua Penyunting

Tutie Djarwaningsih (BO)

Penyunting

Bayu Adjie (KREKB)

Ida Haerida (BO)

Abdulrokhman Kartonegoro (BO)

Deden Girmansyah (BO)

Priyanti (UIN)

Dewi Susan (BO)

Penyunting Pelaksana

Wita Wardani (BO)

Tata Letak

Andi Hapid (BO)

Petunjuk kepada pengarang

Jenis tulisan

Makalah lengkap memuat hasil penelitian floristik, revisi, atau monografi unsur-unsur flora Malesia. Komunikasi pendek mencakup laporan kemajuan kegiatan penelitian, pengembangan dan rekayasa keanekaragaman flora Malesia yang perlu segera dikomunikasikan.

Tulisan lain meliputi obituaris tokoh keanekaragaman flora, tinjauan kritis bergagasan, telaahan serta pembahasan persoalan aktual seputar kegiatan penelitian, pengembangan dan rekayasa tetumbuhan Indonesia, serta timbangan buku akan dimuat berdasarkan undangan.

Rujukan pembakuan

Pemakaian Bahasa Indonesia sepenuhnya mengikuti *Pedoman Umum Ejaan yang Disempurnakan, Pedoman Umum Pembentukan Istilah, Kamus Besar Bahasa Indonesia*, serta kamus-kamus istilah yang dikeluarkan Pusat Bahasa. Bahasa Inggris yang dipakai adalah the Queen

English dengan berpedoman pada *Oxford Dictionary of the English Language*. Ketentuan-ketentuan yang dimuat dalam *Pegangan Gaya Penulisan, Penyuntingan, dan Penerbitan Karya Ilmiah Indonesia*, serta *Scientific Style and Format: CBE Manuals for Author, Editor, and Publishers*, dan buku-buku pegangan pembakuan lain akan sangat diperhatikan. Kepatuhan penuh pada *International Code of Botanical Nomenclature* bersifat mutlak.

Gaya penulisan

Penulisan naskah yang akan diajukan supaya disesuaikan dengan gaya penulisan yang terdapat dalam nomor terakhir terbitan *Floribunda*.

Abstrak informatif supaya diberikan dalam bahasa Indonesia dan Inggris yang masing-masing tidak melebihi 200 kata. Sediakan sekitar 7 kata kunci untuk keperluan pengindeksan dan pemindaian.

Bilamana diperlukan ucapan terima kasih dan bentuk persantunan lain dapat dicantumkan sesudah tubuh teks tetapi sebelum daftar pustaka.

Pengacuan pada pustaka hendaklah dilakukan dengan sistem nama-tahun. Daftar pustaka supaya disusun berdasarkan alfabet nama pengarang dengan memakai sistem Harvard.

Gambar dan tabel merupakan pendukung teks sehingga perlu disusun secara logis dalam bentuk teks atau tabel atau sebagai gambar, tetapi tidak dalam bentuk ketiganya sekaligus. Siapkan gambar yang lebarnya dua kolom cetak.

Penyumbangan naskah

Naskah dikirimkan secara *online* atau melalui *e-mail*. Naskah yang ingin diterbitkan dalam *Floribunda* akan dipertimbangkan pemuatannya hanya jika pengirimannya disertai pernyataan tertulis dari 2 (dua) orang mitra bestari yang dipilih sendiri oleh penulisnya (akan lebih diutamakan bila mitra bestari dipilihkan dari luar lingkungan kerja penulis), yang menyatakan bahwa secara ilmiah keorisinalan dan makna sumbangsih naskah tersebut memang layak diterbitkan. Makalah yang dimuat dikenai biaya Rp. 450.000,00 untuk anggota PTTI dan Rp. 500.000,00 untuk non anggota.

Pengolahan naskah

Sidang penyunting bersama sekelompok mitra bestari akan mengaji ulang kesesuaian isi dan keselarasan format setiap naskah dengan *Floribunda*. Perubahan yang dilakukan akan dikomunikasikan kepada penulis dalam bentuk contoh cetak akhir sebelum diterbitkan.

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THE GENUS PYCNOPORUS IN INDONESIA

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Dewi Susan, Fandri Sofiana Fastanti, Sutikno, Yayan Supriyanti, Yayah Robiah & Nira Ariasari Z. 2021. Marga *Pycnoporus* di Indonesia. *Floribunda* 6(7): 248–256. — Genus *Pycnoporus* merupakan anggota dari Filum Basidiomikota. Jamur ini merupakan salah satu genus polipor yang mudah dikenali dari tubuh buahnya yang berwarna jingga dan memiliki variasi morfologi yang tinggi. Saat ini, terdapat sebanyak 207 spesimen yang tersimpan di Herbarium Bogoriense (BO) yang berada di bawah genus *Pycnoporus* dan teridentifikasi sebagai *P. sanguineus* (L.) Murrill, *P. cinnabarinus* (Jacq.) P. Karst. dan *Pycnoporus* sp. Untuk memastikan bahwa nama jenis spesimen *Pycnoporus* benar, maka penelitian ini dilaksanakan. Proses identifikasi ulang pada koleksi-koleksi spesimen tersebut telah dilakukan menggunakan identifikasi makro dan mikromorfologi terhadap semua spesimen *Pycnoporus*. Studi ini mengungkapkan bahwa koleksi spesimen *Pycnoporus* yang tersimpan di BO terdapat 2 jenis yaitu *P. sanguineus* (L.) Murrill dan *P. puniceus* (Fr.) Ryvarden. Selain itu, beberapa spesimen yang telah diberi label sebagai *P. cinnabarinus* harus divalidasi menjadi *P. puniceus*. Informasi ini akan sangat bermanfaat bagi para taksonom maupun bukan taksonom dan orang yang bekerja di bidang ilmu terapan yang menggunakan jenis-jenis *Pycnoporus* di Indonesia.

Kata kunci: Basidiomycota, jamur, polipor, nama tervalidasi.

Dewi Susan, Fandri Sofiana Fastanti, Sutikno, Yayan Supriyanti, Yayah Robiah & Nira Ariasari Z. 2021. The Genus *Pycnoporus* in Indonesia. *Floribunda* 6(7): 248–256. — The genus *Pycnoporus* is a member of Phylum Basidiomycota. This fungus is one of polypore genera that is easily recognized from the orange color of the fruiting body and it likely has high morphological features. Currently, there are 207 number fungal specimens kept in Herbarium Bogoriense (BO) under the genus *Pycnoporus*, and they were identified as *P. sanguineus* (L.) Murrill, *P. cinnabarinus* (Jacq.) P. Karst., and *Pycnoporus* sp. To ensure that those species name of the *Pycnoporus* collections is correct, thus this study was carried out. Re-identification process on the fungal collections was done based on macro-micromorphological features of all *Pycnoporus* specimens. This study revealed that species *Pycnoporus* collections stored in BO represent 2 species: *P. sanguineus* (L.) Murrill and *P. puniceus* (Fr.) Ryvarden. In addition, some specimens under the name *P. cinnabarinus* should be validated as *P. puniceus*. This information will be very useful for fungal taxonomists, non-taxonomists, and people who work on *Pycnoporus* species from Indonesia.

Keywords: Basidiomycota, fungi, polypore, validated name.

The genus *Pycnoporus* is the member of the family *Polyporaceae*, which is one of the biggest genera under the order Polyporales. *Pycnoporus* was firstly proposed by P.A. Karsten (1881) to separate *P. cinnabarinus* from other fungi because of its distinct color of its fruiting body. It is a cosmopolitan genus that could easily be found in the field. It is a white-rot fungus causing wood decay and high lignocellulolytic potential (Alexopoulos *et al.* 1996). This genus is closely related to *Tra-*

metes, but it is different in having the conspicuous bright reddish-orange color of its basidioma (Ryvarden 1991). This color comes from the synthesis of various pigments of phenoxazine-3-one type, including cinnabarin, cinnabarinic acid and tra-mesanguin (Sullivan & Henry 1971). According to Téllez-Téllez *et al.* (2016), there are two other pigments of phenoxazine-3-one type i.e., α-Aminophenoxyzone and Pycnoporin.

Species of *Pycnoporus* are useful in indus-

tries. It is listed as food-grade and cosmetic-grade microorganisms (Lomascolo *et al.* 2011; Uzan *et al.* 2011). Laccase compound from *P. cinnabarinus* has long been used in bioremediation of polycyclic aromatic hydrocarbons (Rama *et al.* 1998), pulp and paper applications including wheat straw pulp (Sigoillot *et al.* 2004) and sugarcane bagasse (Meza *et al.* 2006) delignification and cross-linking of agro-industrial polysaccharides into biopolymers (De Wilde *et al.* 2008), meanwhile *P. sanguineus* has been known used for biodegradation of synthetic dyes (Attéké *et al.* 2013; Zimbardi *et al.* 2016), and pharmaceutical effluent (Watanabe *et al.* 2012).

Pycnoporus species are widely distributed. In Indonesia, species of *Pycnoporus* have been reported from East Java (Rahayu *et al.* 2020), Yogyakarta (Sharon 2019), West Java (Putra & Astuti 2021); West Kalimantan (Yunita 2014), South Kalimantan (Mabrus *et al.* 2019); Bali (Wahyuni *et al.* 2019), East Nusa Tenggara (Solle *et al.* 2017); South Sulawesi (Arif 2008, Fauzi 2021, Iramayana 2019, Tambaru *et al.* 2016), West Sulawesi (Jumalia & Jamhari 2019); Aceh (Wibowo *et al.* 2021), West Aceh (Rahma *et al.* 2018), Batam (Harahap 2017), Bengkulu (Darwis *et al.* 2020; Susan & Retnowati 2017), Jambi (Romadhon 2020), (Fitriani *et al.* 2018, Sinurat 2016). Another research regarding the *Pycnoporus* capability were mentioned on Suprapti & Djarwanto (2013).

Herbarium Bogoriense is a place to keep dry and wet floral and fungal specimens that are collected from Indonesia, and other countries in the world. Those collections are as the reference of Indonesian flora and fungal diversity. Until 2017, the total number of Indonesian biodiversity has been recorded 31.750 species of flora and cryptogams in total, consisting of 2.273 fungal species, 2.722 bryophytes, 512 lichenes, 1.611 pteridophytes, and 24.632 number of higher plants (Sper-

matophytes) species (Retnowati *et al.* 2019), which most of the collections are kept in Herbarium Bogoriense. As one of the well-known herbaria, it is important to preserve valid and well-identified specimens. This study aimed to observe and re-identified the collections under the genus *Pycnoporus* in Herbarium Bogoriense. The correct identification of fungal collections is of great importance, because it is the fundamental identity of the species that will be used further for other researchers both basic and applied research.

MATERIAL AND METHODS

Fungal specimens under the name of *Pycnoporus* kept in Herbarium Bogoriense (BO), were sorted. A total of 207 specimen numbers of *Pycnoporus* were examined using microscope Nikon Eclipse 80i. Those specimens collected from Borneo (Kalimantan), Java, Lesser Sunda Islands, Moluccas, Papua, Sulawesi, Sumatra, and others countries (America, Australia, Madagascar, and Philippines), which were collected from 1893 to 2018. The complete descriptions of the macro and micro features were written, and some photographs were taken. Some microscopic photographs were taken using IndoMicro camera. The chemical reagents were used for microscopical identification are 5% KOH, Melzer's and Phloxine reagents.

RESULT AND DISCUSSION

The fruiting body of *Pycnoporus* likely has high morphological variations, and accordingly, there are 4 species names under the genus *Pycnoporus* were discerned based on morphological features of pore size, basidiospore shape and their distribution areas (Nobles & Frew 1962; Ryvarden & Johansen 1980; Téllez-Téllez *et al.* 2016) (Table 1).

Table 1. *Pycnoporus* species worldwide and their characters (Ryvarden & Johansen 1980, with some modifications)

Characteristics	<i>Pycnoporus sanguineus</i> (L.) Murrill	<i>Pycnoporus cinnabarinus</i> (Jacq.) P. Karst.	<i>Pycnoporus puniceus</i> (Fr.) Ryvarden	<i>Pycnoporus cocineus</i> (Fr.) Bondartsev & Singer
Basidioma	Smooth, dimidiate, flabelliform, with lighter and darker zones Orange, red to cinnabar	Smooth or warty, dimidiate Orange-orcher to pale orange	Velvety, broadly attached Cinnabar when young, becoming almost black with a cinnabar tinge when old	Smooth, coriaceous Reddish orange
Color				
Size	1.5–10 cm in diameter, 1–4 mm thick	1.5–6 in diameter, 0.4–1.7 cm	4–5 cm in diameter, 1–3 cm thick	5 cm

Table 1. *Pycnoporus* species worldwide and their characters (Ryvarden & Johansen, 1980 with some modifications) *continue*

Characteristics	<i>Pycnoporus sanguineus</i> (L.) Murrill	<i>Pycnoporus cinnabarinus</i> (Jacq.) P. Karst.	<i>Pycnoporus puniceus</i> (Fr.) Ryvarden	<i>Pycnoporus coc-</i> <i>cineus</i> (Fr.) Bondartsev & Singer
Context	1–3 mm thick, corky to floccose	10–15 mm, tough and fibrous	Up to 20 mm thick	3–10 mm, corky pale
Hymenophore	Red-orange to cinnabar	Coral to red	Concolor with pileus	Reddish orange
Pore	Circular, 4–6 per mm	Angular, 2–3 per mm	Round to somewhat angular, 1–3 per mm	6–8 per mm
5% KOH	Upon drying becomes greenish brown	Changing to black	Changing to black	Changing to black
Hyphal systems	trimitic	trimitic	trimitic	trimitic
Spores	cylindrical, smooth, thin-walled, 5.3–7.8 x 2.1–4.5 µm	Cylindrical to slightly bend spores, 5–6 x 2–3 µm	Ellipsoid, smooth, thin walled, 4.5–6 x 2–3 µm	Cylindrical to slightly flattened, slightly curve, 4–5.2 x 2–2.3 µm
Distribution	a common species distributed in tropical and subtropical regions	a common species distributed especially in the Northern Hemisphere	a rare species distributed in Africa, India, Malaysia, and New Caledonia	distributed in the countries bordering the Indian and Pacific Oceans

The total of 207 numbers of *Pycnoporus* specimens in BO, as much as 170 numbers were labelled as *P. sanguineus*, 12 numbers were labelled as *P. cinnabarinus*, and 25 numbers were labelled only genus level. Our observation resulted that the *Pycnoporus* specimens kept in BO could be differentiated into 2 groups based on the morphology differences. The first group, specimens which were characterized by having thin and zoned basidioma, were named as *P. sanguineus*, meanwhile another group was the specimens which were having thick and azonate basidioma were named as *P. puniceus*. The morphologically distinct character for *P. sanguineus* is a conspicuous zone on the upper part of basidioma and mostly having thin basidioma. There is a specific character that could differentiate *P. sanguineus* from other *Pycnoporus* species is by testing a chemical reaction. The *P. sanguineus*'s fruit body will change to black when adding a drop of 5% KOH but then turn to greenish brown upon drying. Meanwhile, other species will turn to black when adding a drop of 5% KOH and remain black upon drying.

Aside from those zoned specimens, some thick and azonate specimens were identified as *P. puniceus*. In fact, those of thick and azonate collections was labelled under the name *P. cinnabarinus*, it is clearly a misidentification. According to table 1, *P. cinnabarinus* is not distributed in the tropic regions, but specifically, it is in the Northern He-

misphere. Further observations using the shape of the spores of those specimens, they were not matched with the spore shape of *P. cinnabarinus*. Referring to Télles-Télles *et al.* (2016), the spores shape of *P. cinnabarinus* are cylindrical to slightly bend, meanwhile the spores in those specimens are completely ellipsoid. Thus, this character is strong evidence to prove that those species under labeled *P. cinnabarinus* was a mistaken. It is confirmed that all specimens under a name of *P. cinnabarinus* should be validated to *P. puniceus*.

Under the above circumscription, the 12 specimens under the name *P. cinnabarinus*, as many as 10 specimens should be re-labelled into *P. puniceus*, meanwhile one specimen was observed as *P. sanguineus* and 1 specimen was belonged to another genus. Then, the 25 number of unidentified specimens, 1 specimen was identified as *P. puniceus*, while 24 others were identified as *P. sanguineus*. From this result, we could recognize that the specimen numbers under a name of *P. puniceus* is only 5.3% comparing to the total of *Pycnoporus* species available in BO. Thus, we can conclude that the occurrence of *P. puniceus* in nature are quite rarely seen. Even though it said so, we could find out the distribution of this species in Indonesia is widely spread. According to the available specimens, these species were collected from Sumatra to Papua. The existence of this species in Indonesia was firstly reported by Risna in 2003. Further

monitoring of *P. puniceus* should be done and because of the scarcity of this species, it could be submitted to the IUCN fungal red list for further conservation strategies.

Taxonomy

Pycnoporus sanguineus (Fr.) Murr.

Fig. 1(A, C, E), Fig. 2(A)

Boletus sanguineus L., Sp. Pl. Edn 2 2(2): 1646 (1763)

Polyporus sanguineus (L.) Fr., Syst. Mycol. (Lundae) 1: 371 (1821)

Coriolus sanguineus (L.) G. Cunn., Bull. N.Z. Dept. Sci. Industr. Res., Pl. Dis. Div. 81: 17 (1949)

Fruitbody annual basidioma, pileus short and sessile, solitary to gregarious, dimidiate to flabelliform, narrowly attached to the substrate, but also semistipitate or contracted into a stemlike base, leathery, coriaceous to corky consistency. Pileus 30 x 22–30 x 1–4 mm (diam, width and thickness, respectively), semicircular pileus of dimidiate, flabelliform, bright orange red when young and reddish orange when ripe, surface velutinous when young becoming glabrous and shiny when old, zoned. Margin acute and entire. Hymenophore poroid, reddish orange, pore 4–6 per mm, circular tube concolor to hymenophore, tubes in one layer, dissepiment thin. Context 1–3 mm thick. Macrochemical reactions occurs by adding 5% KOH resulting in a quick colour change to black in all its part, but upon drying becomes greenish brown, so it gives a false xanthochromia reaction. Hyphal system trimitic, generative hyphae hyaline, thin-walled with clamp, 1–3.5 µm in diameter. Skeletal hyphae thick-walled, 2–6.5 µm in diameter, unbranched and without septa. Binding hyphae thick-walled with short branched 2–2.5 µm thick. Spore cylindrical, smooth, hyaline, non-amylloid, 5.3–7.8 x 2.1–4.5 µm.

Habitat: it grows on dead wood, especially in open and sunny areas, causing white rot.

Distribution: It has been reported in all tropical and subtropical areas of the world, mainly in places altered by human. Distributed from American continent (Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, United States of America, Uruguay, Venezuela); African continent (Benin, British Indian Ocean, Burundi, Cameroon, Comoros, Congo, Cote d'Ivoire, Equatorial Guinea, Eswatini, Guinean-

Bissau, Gabon, Kenya, Liberia, Malawi, Madagascar, Mauritius, Nigeria, Rwanda, Senegal, Seychelles, Tanzania, South Africa, Suriname, Uganda, Zambia); Asian continent (Bangladesh, Cambodia, China, Chinese Taipei, India, Indonesia, Japan, Korea, Lao PDR, Malaysia, Nepal, Pakistan, Philippines, Russian Federation, Singapore, Sri Lanka, Thailand, Vietnam); Australia, Norfolk Island; Bermuda; Caribbean (Antigua and Barbuda, Bahamas, Belize, Cayman Islands, Cuba, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Montserrat, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and The Grenadines, Trinidad and Tobago, Virgin Islands (British), Virgin Islands (U.S.)); Europe (Belgium, France, Georgia, Germany, Russian Federation, Spain, Switzerland); Oceania (Fiji, Guam; Kiribati, Marshall Islands; Manua Islands, Micronesia, New Caledonia, New Zealand, Norfolk Island, Palau; Papua New Guinea, Solomon Islands, Tonga, Vanuatu).

Specimens examined: BURU Is: L.J. To-scopens, 7 Feb 1921 (BO2038); BORNEO: West Kalimantan: Tarjadi Rahmat 191 (BO24569); Sandakan, Ramos 2169, Dec 1920 (BO3206); Ramos 2165, Dec 1920 (BO6660); Seroetoe Is., Leg. Ign 12465, March 1931 (BO12465); Leg. Ign, March 1931 (BO12465); Majang Is., Teysman (BO5387); Entiban, Kenepai Mt., H. Hallier 1637, 1893-1894 (BO5278); Samba, Suhardjono SP95, 19 March 1978 (BO20552) Central Kalimantan: Harry W. 2534, 23 Oct 1981 (BO18837); Pangkoh, J. Westenberg (BO24572); Sampit, J.J. Afriastini 412, 26 Feb 1982 (BO24573); Tanjung Puting, Muchtar 1196A, 2 Aug 1983 (BO19313); East Kalimantan: Bulungan, H. Wiriadinata & Suhardjono 321, 16 March 1981 (BO20501); Kasungai, Afandi 322, 1 Dec 1979 (BO21277); Afandi 228, 1 Dec 2979 (BO21479); Wanariset, J.J. Afriastini 187, Oct 1979 (BO21538); J.J. Afriastini 35, Nov 1979 (BO 21531); Kutai Nature Reserve, M.A. Rifai (BO 22042); M.A. Rifai s.n., 22 Jun 1971 (BO21638); M.A. Rifai s.n., 19 Jun 1971 (BO22074); North of Sebulu, Murata *et al.*, B-1958, 28 Dec 1978 (BO 21947); M.A. Rifai, 19 Jun 1971 (BO22074); Samarinda, H.Wiriadinata 547, 24 Apr 1975 (BO 20523); T. Rahmat 181, 14 Feb 1983 (BO 24579); West Kutai, F.H. Endert 1627, 1925 (BO6228); F.H. Endert 1627, 22 Jun 1925 (BO 6228); F.H. Endert 1819, Jun 1925 (BO6242); Bukit Bangkirai, Y. Abe, M-F-19767, 6 Feb 2001 (BO22355); Y. Abe, M-F-19961, 8 Nov 2001 (BO 22378); Y. Abe, M-F-19920, 8 Sep 2001 (BO 22484); Bulungan Tengah, H. Wiriadinata & Suhardjono 641, 1

Apr 1981 (BO21552); H. Wiriadinata & Suhardjono 649, 1 Apr 1981 (BO21553); Sangkulirang, Aet 57, 1937 (BO17674); H. Wiriadinata 321, 24 Aug 1974 (BO18750); H. Wiriadinata 766, 30 Jun 1975 (BO18751); Lempake, S. Riswan 920, 10 Jun 1976 (BO20498); S. Riswan 891, 4 Jun 1976 (BO18756); S. Riswan 891, 4 Jun 1976 (BO 18756); Mahakam Ulu, K. Kramadibrata 174, 15 Jan 1982 (BO19047); South Kalimantan: Winkler 2297, June 1908 (BO5057); North Kalimantan: Nunukan, W. Meijer, 30 Oct 1953 (BO 17988); CELEBES: Central Sulawesi: Katoposa Mt., Darjono 3, 6 Nov 1982 (BO19251); Darjono 4, 6 Nov 1982 (BO19252); Darjono 6, 6 Nov 1982 (BO 19254); Morowali, J.S. Rahajoe 8, 30 Nov 1994 (BO20310); North Sulawesi: Karakelong Is., H.J. Lam 3233, 31 May 1926 (BO5964); South Sulawesi: Teysmann 12151 (BO5399); Lorena Malili, Muchtar, Jul 1976 (BO18754); Luwu, E.A. Widjaya EAW251, 23 Feb 1977 (BO21915); Palopo, E.A. Widjaya EAW264, 23 Feb 1977 (BO 21914); Pare-pare: M. d Froideville, Apr 1937 (BO 16293); Southeast Sulawesi: Kendari, M. Imelda MI18, 20 June 1978 (BO21053); Kabaena, M. Imelda MI66, 6-19 July 1978 (BO21053); JAVA: West Java: Batavia, Westenberg, Feb 1938 (BO 16607); Westenberg, Aug 1937 (BO16200); Westenberg, Apr 1937 (BO16201); Westenberg, 28 Jan 1938 (BO 16580); Westenberg, 18 Nov 1938 (BO 16607); Westenberg, 8 March 1938 (BO16719); van Steenis 10569a, 21 Nov 1937 (BO16275); Buitenzorg, B. v/d Brink 5469, 23 Apr 1922 (BO 2391); B. v/d Brink 2911, Nov 1923 (BO7130); Bianchi, March 1923 (BO1062); Bianchi 4249, 1 May 1924 (BO 4249); J.G. Hallier 728, 19 March 1893 (BO8360); Bogor Bot. Garden, C.H. Chen 111, 13 Nov 1949 (BO20431); C.H. Chen 111, Dec 1949 (BO20413); Wigman, Nov 1924 (BO 1931); Ciampaea, Dr. van Leeuwen 3452, Apr 1919 (BO5379); Cibodas, K.B. Boedijn 454, Apr 1930 (BO11325); Cilodong, C. van Overeem, 7 May 1922 (BO786); Citho, B. v/d Brink 1528, 10 Feb 1917 (BO14941); Hortus Bogoriensis, P. Dakkus, April 1923 (BO 1130), Wigman Jr. 187, Nov 1924 (BO1931); Leg. Ign, Oct 1923 (BO5491); P. Dakkus, Apr 1923 (BO1130); Wigman Jr. 187, Nov 1924 (BO1931); Wigman Jr., Nov 1924 (BO193); Leg. Ign., Oct 1923 (BO5491); Depok, Dr. Beumee, Feb 1925 (BO2139); K.B. Boedijn 3034, 11 July 1934 (BO 14975); Bantam, N.A., Jun 1939 (BO16839); J. Westenberg, 13 Nov 1939 (BO17157); Patuha, K.B. Boedijn 3520, Jul 1939 (16965); Preanger, B. v/d Brink 1520, 13 Sep 1916 (BO14949); Rijkebush, 6 Jun 1938 (BO16604); P. Phillip, 17 Feb

1922 (BO2187); Peutjang Is: Dranfield 1397, 13 Apr 1971 (BO20598); Sukamantri, Massart 100, Dec 1894 (BO3332); Massart, Nov 1894 (BO 3332); Kuripan, W. Docters van Leeuwen, Nov 1913 (BO1413); Sukabumi, M.A. Rifai 7699, 29 Nov 1974 (BO24578); Ujung Genteng, C.G.G.J. v. Steenis 11315, 29 Jun 1939 (BO 17056); Central Java: Nusa Kambangan: Kosterman & Woerden, Vov 1938 (BO16631); K.B. Boedijn 1038, Feb 1931 (BO12057); K.B. Boedijn 1130, Feb 1931 (BO12133); W. Docters van Leeuwen, Oct 1913 (BO1459); Karimun Jawa: I. Haerida IH578, 14 Jul 2003 (BO22451); Lieftinck 197, Nov 1930 (BO12021); K. Kramadibrata 2, 29 Apr 2004 (BO22457); Leg. Ign, N.A. (BO22457); Kedu, R. Brinkman 705, 1 Apr 1936 (BO15728); Pekalongan, D. van Leeuwen, Nov 1913 (BO 1413); D. van Leeuwen, Nov 1913 (BO1413); P. Menjawak, J.S. Zaneveld 1397, 16 Sep 1949 (BO21175); East Java: Malang, van Heurn, Jul 1937; (BO17262); M.A. Rifai 2754, Dec 1967 (BO18426); M.A. Rifai 2754, Dec 1967 (BO 18426); Jember, Besuki, Dr. Gandrup 1 & 12 (BO1969); N.A., 1933 (BO13981); Semeru Mt., J.G. van Houten, 26 Oct 1941 (BO17603); Bally, Jul 1929 (BO10959); LESSER SUNDA ISLAND: BALI: Mien A. Rifai 4035, 13 Dec 1969 (BO 21997); Mien A. Rifai 4028 13 Dec 1969 (BO 21998); FLORES: Jaag 1883, 1 Jun 1938 (BO 17224); LOMBOK: D. Susan 1810, 10 March 2018 (BO24581); SUMBA: Hoet 489, 1925 (BO 7414); Hoet 489, 1925 (BO 7421); PAPUA: Waigeo Is., A. Sumadijaya leg.ign, 5 May 2008 (BO24580); TIMOR: Teysmann 16418 (BO8202); MOLUCCAS: Halmahera: P. Naiola, 26-27 Oct 1977 (BO21805); Muchtar 80, 29 Nov 1974 (BO 21176); Muchtar 134, 13 Dec 1974 (BO21177); Muchtar 93, 5 Oct 1974 (BO21296); Muchtar 93, 5 Oct 1974 (BO21309); Muchtar 7, 22 Nov 1974 (BO21312); Muchtar 285, 15 Nov 1974 (BO 21361); P. Groenhart 8102, 17 Nov 1951 (BO 17796); SUMATRA: Aceh: K. Kramadibrata 365, 25 June 1996 (BO20646); Palembang: v. Woudt, May 1939 (BO16828); J.P. Mogea 4959, 12 Dec 1983 (BO19363); VERLATEN EILAND: W. Docters van Leeuwen 4134, 25 April 1920 (BO 1485); O. Arrhenius, April 1921 (BO1934); K.B. Boedijn 2889, Feb-Dec 1933 (BO14660); K.B. Boedijn 2184, Nov 1932 (BO 13755); K.B. Boedijn 2237, Nov 1932 (BO13785); K.B. Boedijn 2683, 16 Oct 1933 (BO14582); K.B. Boedijn 2890, Nov 1932 (BO13755); K.B. Boedijn 2317, Jan 1933 (BO13900); MADAGASCAR: A. Botozanany 10, 1936 (BO19532); PHILIPPINES: Luzon, Ramos 1863, Jan 1907 (BO4039); Ramos

1863, Jan 1907 (BO6556); Ramos 1863, Jan 1907 (BO4051); Palmas, Merril 5371, Oct 1906 (BO 3606); Merril 5371, Oct 1906 (BO6740); Palawan, Puerto Princesa, A.D.E. Elmer 12791, March 1911 (BO4062); Calawang, F. Bernardo, 13 Feb 1921 (4430); Island of Polillo, R.C. Mc Gregor 10551, Oct-Nov 1909 (BO4110); Mt. Maquiling, A. Manza 60610, March 1920 (BO14200); Caminguion, Fenix 4175, July 1907 (BO4111); UNITED STATES: Southern St., C.J. Humphrey, 1914 (BO 14810); AUSTRALIA: New South Wales, M.A. Rifai, 22 Aug 1971 (BO24577); VIETNAM: South Vietnam, L. Phi-Hang 2, 1972 (BO24576).

***Pycnoporus puniceus* (Fr.) Ryvarden**

Fig. 1(B, D, F), Fig. 2(B)

Syn. *Trametes punicea* Fr.

Fruitbody annual basidioma, sessile, solitary to gregarious, broadly attached, size 40–50 x 7–10 x 20 mm (diam, width and thickness), consistency corky to hard when dry. Pilei dimidiate, dark orange to darker red color, azonate, surface glabrous to somewhat furrowed. Context up to 4 mm thick, cinnabar to darker red. Hymenophore poroid, pore large 1–3 per mm, dissepiment thin, tubes in one layer up to 8 mm. Macrochemical reactions occurs by adding 5% KOH resulting in a quick color

change to black in all its part. Hyphal system trimitic, generative hyphae thin to slightly thick-walled, hyaline to yellowish, sparsely clamped, 2.5–4 µm in diameter, skeletal hyphae dominating, yellowish, thick-walled, up to 6 µm, binding hyphae irregular, thick-walled, yellowish, up to 5 µm in diameter. Spore ellipsoid, hyaline, thin-walled, smooth, 4.5–6 x 2–3 µm, non-amyloid.

Habitat: grows on deciduous wood

Distribution: It is a rare species, known from Africa (Angola, Ghana, Nigeria, Zaire), Asia (India, Malaysia, Indonesia) and Oceania (New Caledonia).

Specimens examined: BORNEO: Central Kalimantan, Tipuk A. SA-3/74B, 3 Nov 2001 (BO 23887); Tipuk A. SA-3/12B, 3 Nov 2001 (BO 23980); CELEBES: Sulawesi Tenggara, Buton, Maria Imelda MI-73, 20 June 1978-19 July 1978; Kabaena, Maria Imelda MI-167, 20 June 1978-19 July 1978; Kolaka, Maria Imelda MI-200, 20 June 1978-19 July 1978; JAVA: Bantam, Carita, K.B. Boedijn, 22 Mei 1931; Ujung Kulon, Mondih (BO 18280); Sukabumi, Rykebeusch, Oct 1937; MOLUCCAS: Sula Island, J. Bloembergen 4315 (BO 24570); PAPUA: Nabire, Mien A. Rifai, 2 Mei 1973 (BO24571); SUMATRA: Aceh, A. Rant 908 (BO13573); VERLATEN EILAND: K.B. Boedijn 2889, Dec 1933 (BO14660).



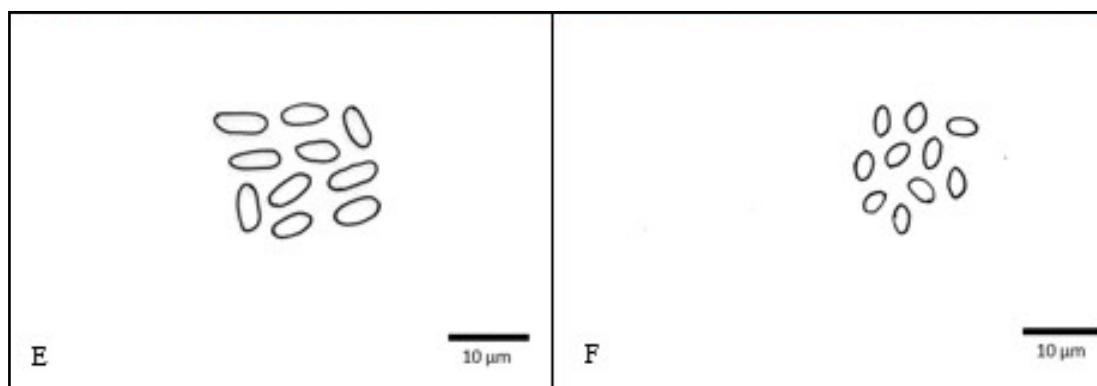


Figure 1. Fruiting body: A. *P. sanguineus* with pseudostipitate, flabelliform and zoned fruitbody; B. *P. puniceus* having broadly attached and azonate fruitbody; C. pore of *P. sanguineus*; D. pore of *P. puniceus*; E. Basidiospore of *P. sanguineus*; F. Basidiospore of *P. puniceus*.

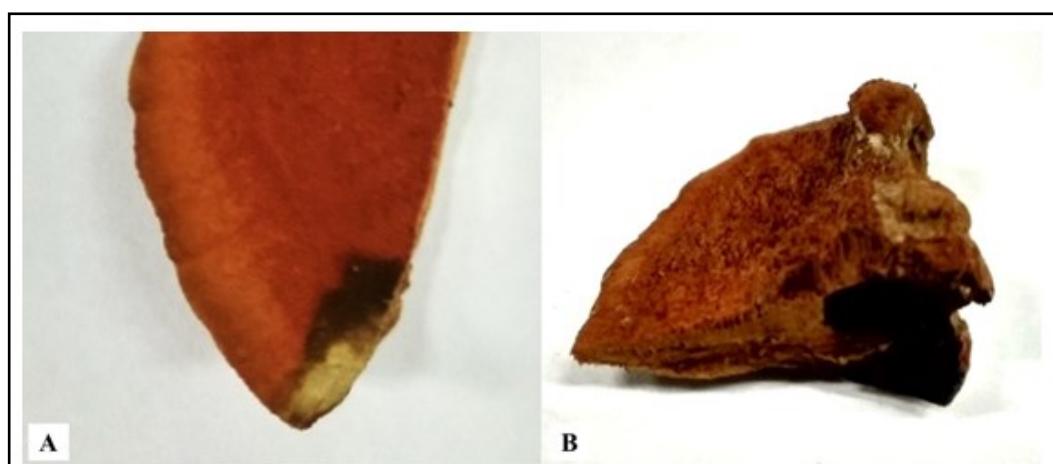


Figure 2. Chemical reaction to 5% KOH: A. Fruitbody *P. sanguineus*; B. Fruitbody of *P. puniceus*.

CONCLUSION

All the orange polypore specimens stored in Herbarium Bogoriense were identified into two species i.e., *P. sanguineus* and *P. cinnabarinus*, while several numbers are not identified into species. Based on this study, it has been revealed that species under a name *P. cinnabarinus* should be replaced to *P. puniceus* due to several evidence. Thus, through this research, specimens under the genus *Pycnoporus* in Herbarium Bogoriense have been validated.

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