

Congronella namwonensis



Fungal Planet 1081 – 29 June 2020

Gongronella namwonensis Hyang B. Lee, A.L. Santiago & H.J. Lim, *sp. nov.*

Etymology. Name refers to the isolation site, Namwon city, from where the strain was first isolated.

Classification — *Cunninghamellaceae*, *Mucorales*, *Mucoromycotina*, *Mucoromycota*, *Mucoromyceta*.

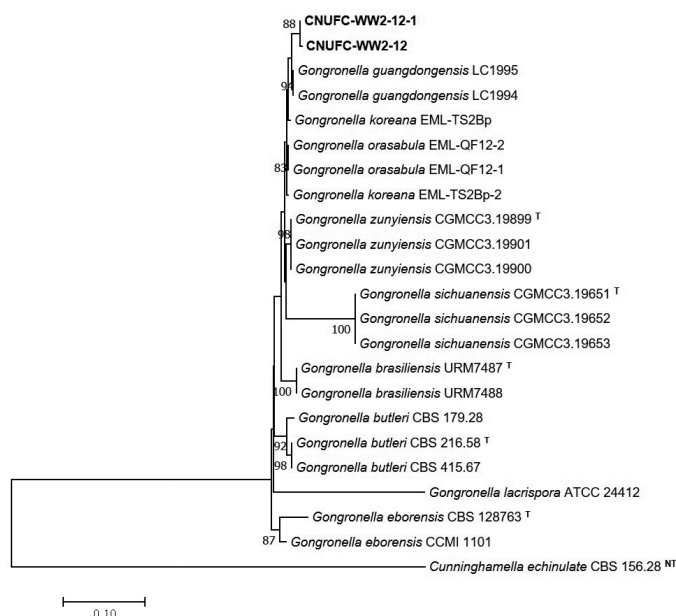
Mycelium hyaline. **Rhizoids** hyaline, coenocytic, branched; **stolons** hyaline, coenocytic, smooth-walled. **Sporangiophores** mostly arising from stolons or directly from aerial hyphae and stolon-like, erect or slightly recumbent, apophysate, simple or commonly sympodially and/or monopodially branched, smooth-walled, up to 1 mm in length and 5 µm diam, with up to 1 septum (majority) below the sporangium. Short and long branches may be found on the same sporangiophore at short or long distances from the main sporangium, and frequently rebranching. Branches in whorls of 2 or 3 may be found on some sporangiophores. **Apophyses** globose (2.5–)5–9.5(–12) µm, subglobose and ellipsoid, some with a truncated base, 7.5–14.5 × 5.5–12 µm, smooth-walled. **Sporangia** pale yellow, globose, wall transparent, deliquescent and smooth, up to 30 µm diam. Sometimes sterile sporangia are formed. **Columellae** hyaline, globose, subglobose, 3.5–7 µm diam, hemispherical, 1.8–5.5 × 2.5–8.5 µm, nipple-like, ellipsoidal, 2–3.8 × 2–5 µm. **Sporangiospores** hyaline, reniform, ellipsoidal, some ovoid, 2.5–3.5 × 1.7–2.5 µm, rarely irregular, up to 6 × 2.5 µm. **Giant cells** globose, subglobose and branched. **Chlamydospores** mostly globose and subglobose. **Zygosporangia** not observed.

Culture characteristics & Temperature tests — Colony white, reverse cream, low to moderate growth, taking the whole Petri dish (9 cm diam) after 5 d on malt extract agar (MEA) at 28 °C; odourless; at 5 °C – lack of growth; at 10 °C – slow growth (0.6 cm diam after 168 h); at 15 °C – slow growth (2.2 cm diam after 168 h); at 20 °C – slow growth (3.5 cm diam after 168 h), better than at 15 °C; at 25 °C – moderate growth (5.5 cm diam after 168 h); at 28 °C – optimum growth (9 cm diam after 120 h); at 30 °C – moderate growth (6 cm diam after 168 h); at 35 °C – slow growing (1.4 cm after 168 h). *Gongronella namwonensis* exhibited slightly better growth on MEA than on potato dextrose agar (PDA) at 20, 25, 28, 30 and 35 °C with similar growth at 10 and 15 °C. The growth was also slightly better on MEA than on synthetic mucor agar (SMA), except at 35 °C, where *G. namwonensis* grew 2.2 cm after 168 h in SMA.

Colour illustrations. Woncheon stream, located in Namwon City, Jeonnam Province, Republic of Korea. Once branched sporangiophore with fertile and sterile sporangium (branch); branched sporangiophore with two branches in whorls of two and columellae; sympodially branched sporangiophore with columellae and sterile sporangia; unbranched sporangiophore with apophysis and columella; giant cells; unbranched sporangiophore with apophysis and columella; sporangiospores. Scale bars = 20 µm.

Typus. SOUTH KOREA, Namwon City, Jeonbuk Province, N35°24'27.66" E127°24'53.12", from freshwater samples, 24 July 2019, H.B. Lee (holotype CNUFC-WW2-12; ITS and LSU sequences GenBank MN658480 and MN658482, MycoBank MB833390).

Notes — *Gongronella namwonensis* differs from other species based on its morphological characters and the phylogenetic relationships established based on the ITS and LSU rDNA regions. Morphologically, *G. namwonensis* differs from the other species by producing concomitantly strongly sympodially and/or monopodially branched sporangiophores, some showing branches in whorls of 3, columellae varied (some nipple-like) and apophyses (some with a truncated basis), as well as giant cells. So far, giant cells had only been visualised in *G. brasiliensis*. Sporangiophores of *G. namwonensis* presents up to one septum below the sporangia and are long (up to 1 mm in length), different from the shorter (up to 320 µm in length) and with up to two septa sporangiophores of *G. brasiliensis*. The columellae of *G. brasiliensis* are globose, subglobose and conical-cylindrical, never hemispheric or nipple-like, as observed in *G. namwonensis*. Additionally, as observed in *G. brasiliensis*, our species produces sporangiospores varied in shape, but they are never falciform or ellipsoid to fusiform like the ones of the Brazilian species (Tibpromma et al. 2017). In the ITS and LSU rDNA trees (data not shown) *G. namwonensis* was placed in a well-supported clade separate from the other species. A more closely related species is *G. guangdongensis*. Morphologically, both species can be easily distinguished by the shape of sporangiospores, being globose in *G. guangdongensis*, as well the fact that it lacks rhizoids and stolons (AdAmčik et al. 2015), both structures which are present in *G. namwonensis*.



Hyang Burm Lee & Hyo Jin Lim, Environmental Microbiology Lab, Dept. of Agricultural Biological Chemistry, College of Agriculture and Life Sciences, Chonnam National University, Korea; e-mail: hblee@jnu.ac.kr & hyojinzanggu95@naver.com
 André Luiz C.M de A. Santiago, Department of Mycology, Federal University of Pernambuco, Recife, Brazil; e-mail: andrelicabral@msn.com