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Phycomyces, a new genus for Iranian funga

M.R. Asef ✉
Department of Botany, Iranian Research Institute of Plant Protection, Agricultural Research, Education and Extension Organization (AREEO),Tehran, Iran

N. Hatami
Graduated student of Environmental Science, Tehran Azad University (North Branch), Tehran, Iran

S. Zangeneh
Department of Botany, Iranian Research Institute of Plant Protection, Agricultural Research, Education and Extension Organization (AREEO),Tehran, Iran

Samples of a hair-like fungus were collected from Lahijan in Gilan province, nearby the excreta of Indian crested porcupine (*Hystrix indica* Kerr.). Microscopic observations showed long, erect, aerial sporangiophores of a mucor-like fungus with globular sporangia at the apex (Fig. 1 A, B, C, D). Sporangiophores were measured up to 15 cm in height, 100 to 400 µm diameter, and silvery to shiny black in color. Sporangia were yellow to brown or silvery to black, shiny, and 250 to 950 µm diameter.

Specimens were transferred to PDA culture media and the colonies grew rapidly, covered culture media in about five days. Sporangiophores arose from basal mycelia and elongated to at least 4-5 cm in height and 50-75 µm in diameter, without septa, pale brown, brown to black, constricted below the sporangium, with positively intense phototropism. Sporangia were yellow, orange to black, globose, and 50-120 µm in diameter. Columella were pyriform, smooth, and light to dark brown, with clear collar (Fig. 1 E). Sporangiospores were smooth, hyaline, elliptical, and measured 12-30 × 6.5-15 µm (Fig.1 F). No zygospores found in the culture. Specimens were identified as *Phycomyces nitens* (C. Agardh) Kunze (Mucoromycota, Mucorales, Phycomyceteceae) based on Benjamin and Hesseltine (1959) and Camino *et al.* (2015). This is the first report of a species from genus *Phycomyces* in Iran. The absence of zygospore in the culture medium was due to that the *P. nitens* is a heterothallic species (Eslava & Alvarez 1996).

Species of *Phycomyces* are saprobic filamentous fungi, historically belonged to Zygomycota and recently reclassified to a newly introduced phylum Mucoromycota (Spatafora et al. 2016).The genus *Phycomyces* was originally described as an algal species, *Ulva nitens*, by Agardh in 1817 (Benjamin and Hesseltine 1959) and hence the genus name was determined as *Phycomyces.* In 1823, Kunze recognized it as a fungus, and erected *Phycomyces* name for the genus and introduced *P. nitens* as type species of the genus (Kunze 1823).

Three species have been recognized in *Phycomyces, viz., P. blakesleeanus* Burgeff, *P. microspores* Tiegh. and *P. nitens* throughout the world. They can be distinguished by the shape and size of the sporangiospores. In *P. microspores* sporangiospores are globose, whereas sporangiospores are elliptical in the other two species. *Phycomyces blakesleeanus* have sporangiospores with 6-12 µm length (Benjamin and Hesseltine 1959). Despite the widespread geographical distribution of *P. nitens* in Europe and the United States, this species has been reported only from Japan in the Asia (Camino et al. 2015).Species of *Phycomyces* are model organisms for studies of phototropism and geotropism, carotene biosynthesis and other aspects of metabolism, and also sexuality (Camino et al. 2015, Eslava and Alvarez 1996). Specimen examined: Iran, Gilan Province, Lahijan, Goharsara; nearby the excreta of *Hystrix indica*, 2021, Hatami, N and Varzkaari, F, IRAN 18094 F.

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✉ Corresponding Author: E-mail: asef_iran@yahoo.com

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Fig 1. Morphology of *Phycomyces nitens*. A. Fungus in natural habitat (Bar= 20 mm); B, C, D. Sporangiophores and sporangia in natural habitat (Bars: B= 10 mm, C, D= 2 mm); E. Columella (Bar= 100 µm) in PDA; F. Sporangiospores (Bar= 20 µm)