SHORT COMMUNICATION

A checklist of plasmodial myxomycetes (slime molds) from Subic Watershed Forest Reserve, Zambales, Philippines

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Abstract. Plasmodial myxomycetes or slime molds were collected from two forest sites (NavMag Forest Area and Pamulaklakin Forest Trail) in Subic Watershed Forest Reserve, Zambales, Philippines. Twigs and ground leaf litter were collected and used for the preparation of moist chambers. Following incubation of moist chambers for 8 weeks, fruiting bodies of myxomycetes from the moist chambers as well as from field collections were characterized and identified. A total of 14 species belonging to seven genera and three orders were identified. The identified species were as follows: Arcyria cinerea, A. denudata, Comatricha nigra, Hemitrichia serpula, H. calyculata, Lamproderma sp., Physarum globuliferum, P. leucophaeum, P. nutans, Stemonitis fusca, S. pallida, Stemonitis sp., S. splendens and Ceratiomyxa fruticulosa. This is the first report of plasmodial myxomycetes from Subic Watershed Forest Reserve.

Keywords: taxonomic checklist, myxomycetes, Subic Watershed Forest Reserve, slime molds

Myxomycetes, also known as plasmodial slime molds or myxogastrids, are morphologically diverse group of eukaryotic fungus-like protists commonly found inhabiting terrestrial ecosystems. They ingest soil bacteria, yeasts and other microorganisms as food, and thus, are thought to play a vital role in maintaining balance among microbial populations in the soil. Myxomycetes thrive in tropical countries due to its high humidity and moisture content which support better growth of their microbial food [1, 2, 3]. However, little is known of the status of myxomycetes biodiversity in tropical Southeast Asia, particularly in the Philippines. Uyenco recorded only 18 species belonging to ten genera from specimens collected from 1961 to 1973 [4]. Dogma later credited the country with 46 species of myxomycetes belonging to 20 genera [5]. But perhaps, the most extensive works on Philippine myxomycetes was that of Reynolds in 1981. He presented an annotated list of 107 species.
species of Philippine myxomycetes based on published and unpublished records [6]. Recently, interest on myxomycetes is gaining momentum, particularly with discoveries of specimens more than a century old [7]. One new species, *Craterium retisporum*, was described based from specimens collected from Anda Island, Pangasinan [8]. Dagamac *et al.* also reported seven species of corticolous myxomycetes from *Samanea samans* (Jacq.) Merr., five of which were new records for the country [9]. However, the number is still considered small as compared to other countries in the tropics. Subic Watershed Forest Reserve in Zambales Province thus offers an ideal site to search for species of myxomycetes. No myxomycetes in this location have been reported so far. This research study is the first report of the presence of plasmodial myxomycetes in Subic Watershed Forest Reserve.

The Subic Watershed Forest Reserve (14°48.336 N, 120°19.815 E) is located in the province of Zambales, Northern Philippines (Fig. 1). It covers an area of 10,000 hectares with the forest dominated by dipterocarp trees [10]. Two accessible sites in the areas were chosen for the collection of field specimens and substrates for moist chambers, i.e. the Pamulaklakin Forest Trail and the NavMag Forest Area. In each collection site, twigs (TW) and ground leaf litter (GL) were randomly collected and used for the preparation of moist chambers (MC) as described by Stephenson & Stempen [11]. Moist chambers (MC) were placed inside wooden cabinets not directly exposed to sunlight, incubated at room temperature for up to 8 weeks, and observed regularly (at least twice a week) for the presence of plasmodia and/or fruiting bodies. Field collections (FC) were also obtained directly from the two collection sites. All fruiting bodies were allowed to air-dry gradually, glued onto herbarium boxes and initially deposited at the Pure and Applied Microbiology Laboratory, Research Center for the Natural and Applied Sciences, UST. Photographs of each of the specimens were taken using the Moticam 1000 (Motic, USA). Identification of specimens was done based on their fruiting body descriptions and spore morphologies following their comparison with published literatures [11, 12, 13] and with web-based (the Eumycetozoa Project, http://slimemold.uark.edu/) and electronic identification keys (Synkey developed by David Mitchell, 2008). Current names were based on an online nomenclatural database for the eumycetozoans (http://nomen.eumycetozoa.com) [14].

A total of 14 species belonging to 7 genera were described in this research study (Fig. 2). Majority belongs to the Order Stemonitales (six species). Three species for the Order Physarales and four species for the Order Trichiales were also reported. One species reported in this study, *Ceratiomyxa fruticulosa*, were previously classified under Class Myxomycota but are now listed under Class Protostelids. Listed below are the myxomycetes collected from Subic Watershed Forest Reserve:

I. Plasmodial myxomycetes


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twigs, site: NavMag Forest Area, Subic Forest Reserve, Zambales, August 16, 2009.


*Lamproderma* sp. FC, substrate: decaying wood, site: Navmag Area, Subic Forest Reserve, Zambales, August 16, 2009.


Fig. 2. Representative plasmodial myxomycetes collected from Subic Watershed Forest Reserve, Zambales: fruiting bodies of (a) *Physarum globuliferum*, (b) *Hemitrichia calyculata*, (c) *Stemonitis pallida*, (d) *Lamproderma* sp., (e) *Arcyria cinerea*, and (f) *Hemitrichia serpula*, and spore phenology of (g-h) *Arcyria denudata*, and (i) *Physarum nutans*.


Stemonitis sp. FC, substrate: decaying wood, site: Navmag Area, Subic Forest Reserve, Zambales, August 16, 2009.

II. Protostelids


From the collected myxomycetes, most species were of cosmopolitan distribution. All species have also been previously reported in the Philippines. For example, Arcyria cinerea was reported in the collections from Malita in Davao, in Albay and Sorsogon, in Sirat, Ilocos Norte, and from Mt. Makiling in Laguna and Mt. Arayat in Pampanga [15, 16]. Physarum leucophaeum and Stemonitis pallida were reported as corticolous myxomycetes associated with Samanea samans [9]. These, together with the species of Arcyria denudata, Comatricha nigra, and Stemonitis fusca, were listed from Mt. Arayat National Park in Pampanga as well as from either one of the provinces of Camarines, Palawan and the Mountain Province [15, 16]. Hemitrichia serpula was also previously reported from Albay, Camarines Province, Laguna, Mountain Province, Palawan and Sorsogon [16]. However, two species, Lamproderma sp. and Stemonitis sp., could be identified up to the genus level only. This annotation served as the first report of plasmodial myxomycetes in Subic Watershed Forest Reserve, Province of Zambales.

REFERENCES


