

# *Diderma effusum* (Schwein.) Morgan (Amoebozoa): a new record of a myxomycete from Antarctica

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**Abstract:** Myxomycetes have been recorded from virtually every type of terrestrial ecosystem. However, the number of species known from Antarctica is very low, with only nine species in six genera representing the total myxobiota prior to the three records of *Diderma effusum* reported herein. This species appeared in moist chamber cultures prepared with samples of bryophytes

Keywords: bryophytes, moist chamber cultures, protists, slime molds

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## Introduction

The limited availability of liquid water, low temperatures, low habitat heterogeneity, and the absence of woody substrates impose severe environmental restrictions on the presence of myxomycetes (slime molds or myxogastrids) in Antarctica. Velloso et al. (2024), who reviewed all reports of myxomycetes from Antarctica, listed only nine species representing six genera. Horak (1966) was the first to report a myxomycete from Antarctica, and additional species were added by Ing and Smith (1983), Arambarri and Spinedi (1989), Putzke et al. (2004), and Velloso et al. (2020). The nine species reported thus far from Antarctica include four (*Leptoderma megaspora* Aramb. & Spinedi, *Oligonema dancoii* Aramb. & Spinedi, *Trichia antarctica* Aramb. & Spinedi, and a species of *Diderma*, *D. antarcticola* Horak) that appear to be endemic. The remaining species are primarily associated with high-latitude ecosystems, with occasional reports from other ecosystems throughout the rest of the world. *Diderma effusum* is an exception to this general pattern since it is a widely distributed species worldwide (GBIF 2023). Myxomycetes are relatively more common in the subantarctic, with diversity increasing with decreasing latitude and increasingly less severe conditions (Stephenson et al. 1992, Stephenson et al. 2007, Stephenson 2011). For example, 26 species are known from subantarctic Macquarie Island, located at 54° S latitude (Stephenson et al. 2007).

## Methods

In late December of 2004 and early January of 2005, Ina Timling a graduate student at the University of Alaska, visited the Antarctic as a tourist aboard one of the vessels that make the voyage from

Ushuaia to the Antarctic Peninsula. During this visit, she collected samples of bryophytes from several different localities and then sent these samples to the author when she returned to the United States. Bryophytes commonly occur in areas of exposed rock in the localities from which the samples were collected (Fig. 1). These samples were processed in moist chamber cultures in the manner described by Stephenson and Stempen (1994).



**Figure 1.** Bryophytes on rocky outcrops near the Almirante Brown Scientific Station on the Antarctic Peninsula. (Photo by Steve Stephenson)

## Results and Discussion

Several moist chamber cultures yielded fruiting bodies of *Diderma effusum* (Fig. 2), a species not previously recorded from Antarctica. The purpose of this paper is to report this addition to the myxomycete biota of Antarctica. Collections listed below were deposited in the herbarium of the University of Arkansas (UARK).

*Diderma effusum* (Schwein.) Morgan

ANTARCTIC PENINSULA, Livingston Island, 62°41' 18" S, 60°11' 38" W, specimens obtained in moist chamber cultures prepared with bryophytes, material collected on 29 December 2004, SLS 19816 and SLS 20797.

ANTARCTIC PENINSULA, Almirante Brown Scientific Station, 64°53' 44" S, 62°53' 15" W, specimen obtained in a moist chamber culture prepared with bryophytes; material collected on 1 January 2004, SLS 20801

It is interesting that *Diderma effusum* is the fourth species of *Diderma* reported from Antarctica. Bryophytes do not represent the typical habitat of this species, which is more likely to occur on leaf litter and other types of dead material derived from herbaceous plants (Martin and Alexopoulos 1969).

However, the occurrence of the fruiting bodies of *D. effusum* on mosses has been reported (e.g., Stephenson and Rojas 2020).



**Figure 2.** Fruiting bodies of *Diderma effusum* appearing on samples of bryophytes in moist chamber culture. (Photo by Steve Stephenson)

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