Growth variability in response to UV-B radiation among *Pseudogymnoascus* sp. isolated from polar and temperate region.


1 Institute of Ocean and Earth Sciences, Institute of Graduate Studies, University of Malaya, 50603 Kuala Lumpur, Malaysia

2 National Antarctic Research Centre, Institute of Graduate Studies, University of Malaya, 50603 Kuala Lumpur, Malaysia

E-mail: maccuswong@siswa.um.edu.my

Solar UV radiation is the primary source of light energy on the Earth’s surfaces responsible for a wide range of biological effects in many organisms. Excessive exposure to solar radiation increases in the temperature, dehydration, and UV-induced damages in most organisms. A cosmopolitan genus of soil fungi, *Pseudogymnoascus* sp., often inhabits at higher latitudes and experiences variable intensities of UV-B radiation following the climate seasons. *Pseudogymnoascus* sp. strains in Antarctica may have been pre-adapted to UV-B radiation that has been increasing for the past 20 years in the Southern Hemisphere. Hence, our current aim is to determine the growth response toward UV-B irradiances in *Pseudogymnoascus* sp. from three latitudes representing the Arctic, Antarctic and the Temperate zone. Maximum-likelihood (ML) analyses will be conducted to construct phylogenetic trees based on six loci; ITS region, LSU, SSU, MCM7, RPB2 and TEF1; in order to select three closely related strains for the UVB treatments. Selected strains will be treated under two different UV-B intensities, 6 kjm-2s-1 and 3 kjm-2s-1, respectively. The exposure treatments follow a 12 hourly interval of photosynthetically active radiation (PAR) photoperiod. Fungal colony diameter will be measured using a ruler (±1mm) at every 24 h during the course of a 14 d culture run. These data will be used to identify the fungal’s standard growth phases; the lag, exponential, linear and deceleration phases. Split-plot ANOVA will be used to analyse fungal colony diameter extension between the three fungal strains from different latitudes exposed to the different radiation treatments.