

SOLAR RADIATION VERSUS ANEMOPHILIC FUNGI IN THE AIR FROM A SEWAGE PRE-CONDITIONING STATION

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ABSTRACT

A Sewage Preconditioning Station – SPS is responsible for extract the solid materials and floating of sewer, so that later it can be released in the sear, therefore, characterizing an easy environment for air pollutants. The dissemination of microorganisms by the air can be influenced by different factors, like, humidity, temperature, solar radiation, among others. In this context, the present study aimed monitoring the fungi incidence present in the air of a SPS in Fortaleza-CE and relate the found with solar radiation. Between September 2016 and February 2017 were carried out monthly collections in the EPC in the sectors: Manual railing; Mechanized railing and the Odors Treatment Station - OTS. The fungal propagules were collected using the passive sedimentation method on 150 mm diameter Petri dishes containing Potato Agar (Himedia®) for a period of 3 hours of exposure. 7:00 a.m. to 10:00 am. Posteriorly, the Petri dishes were forwarded to the Laboratory of Microbiology – LAMIC/UECE for identification based in macro and micro morphological aspects. Meanwhile, the solar radiation data were provided by Fundação Cearense de Meteorologia e Recursos Hídricos - FUNCEME. In total, it was analyzed 18 samples and verified a mean of the C.F.U.m-3 in each sector: OTS (590.2 CFU.m-3), Mechanized railing (591.4 CFU.m-3) and Manual railing (484.5 CFU.m-3). Faced with fungal diversity, 32 fungi genera were identified, 21 genera in the OTS, 17 genera in the Manual railing and 14 in the mechanized railing. The genera most frequent in the Manual railing were *Aspergillus niger* (83.3%) and *Curvularia* sp. (66.6%), in the mechanized railing were *Aspergillus niger* (100%) and *Penicillium* sp. (83.3%), while OTS showed *Aspergillus niger* (83.3%), *A. flavus* (83.3%) and *Acremonium* sp. (83.3%). Knowing these values and the average solar radiation, the months of collection were performed to test the value obtained $p \leq 0.05$, showing no relation between quality and fungal quality with solar radiation. Research shows that the intensification of radiation has been increasing in recent decades and this means damage to the main decomposers in the food chain. With this, there is a need to deepen research that analyzes the damage that solar radiation can cause to the fungus. Finally, it was not possible to establish a positive relationship between these two aspects, requiring a monitoring covering the entire dry season and rainy season of the State of Ceará.

Keywords: Solar radiation, fungal quantitative, anemophilous fungi.

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