



Characterization of the Pigment Produced by a Psychrotolerant Strain of *Penicillium* sp. (MCC1061) isolated from Indian Himalayan Region

Neha Pandey^{1*}, Rahul Jain¹, Anita Pandey¹, Sushma Tamta²

Biotechnological Applications, G B Pant National Institute of Himalayan Environment and Sustainable Development, Kosi-Katarmal, Almora-263643, Uttarakhand, India

Department of Botany, DSB Campus, Kumaun University, Nanital-263001, Uttarakhand, India

Address for Correspondance: Neha Pandey, neha.pandey221@gmail.com

Keywords

Psychrotolerant;
Penicillium,
Pigment,
Carotenoid;
Antimicrobial
Activity .

ABSTRACT: A psychrotolerant fungal strain (GBPI_P155), isolated from high altitude soil in Indian Himalayan Region, is characterized for its potential to produce natural pigment. The fungus was identified using morphological and molecular techniques. The fungus produced colonies having white margins with green sporulation releasing orange exudates on Potato Dextrose (PD) agar. Molecular identification based on ITS region (ITS1-5.8S-ITS2) sequencing showed maximum similarity of the fungus with *Penicillium* sp. The range of temperature and pH tolerance of the fungus was observed between 5 to 35 °C (optimum 25 °C) and 2-14 (optimum pH 5-7), respectively. The fungus was found to produce orange coloured water-insoluble pigment in PD broth starting from 5 days of incubation. The optimum temperature and pH for pigment production was found to be at 25 °C and pH 5-7, respectively, in PD broth. The insoluble pigment precipitate was extracted and solubilized in chloroform and characterized partially. UV/Vis spectrum of the chloroform extracted part showed λ max at 495nm with a shoulder peak at 530nm. Separation of chloroform extracted pigment was performed by thin layer chromatography (TLC) using different combinations of organic solvents. Best separation was achieved by hexane:acetone:toluene:ethanol (10:7:7:6) where two spots (orange and brown) having Rf values 0.89 and 0.79, respectively, were observed. The extracted pigment also showed antimicrobial activity against Gram positive bacteria (*Bacillus subtilis* and *B. megaterium*). Based on the preliminary analysis of extracted pigment, it appears to belong to the carotenoid group. Further analysis of the pigment using advanced techniques is in progress. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

Conference Proceedings: International Conference on Advances in Plant and Microbial Biotechnology (PMB-2017); JIIT, Noida: February 02-04, 2017

Indo Global Journal of Pharmaceutical Sciences(ISSN 2249 1023 ; CODEN- IGJPAI; NLM ID: 101610675) indexed and abstracted in EMBASE(Elsevier), SCIRUS(Elsevier),CABI, CAB Abstracts, Chemical Abstract Services(CAS), American Chemical Society(ACS), Index Copernicus, EBSCO, DOAJ, Google Scholar and many more. For further details, visit <http://iglobaljournal.com>