

Antifungal Protein ~35kDa Produced by *Bacillus cereus* Inhibits the Growth of Some Molds and Yeasts

Authors : Saleh H. Salmen, Sulaiman Ali Alharbi, Hany M. Yehia, Mohammad A. Khiyami, Milton Wainwright, Naiyf S. Alharbi, Arunachalam Chinnathambi

Abstract : An antifungal protein synthesized by *Bacillus cereus* has been partially purified by the use of ammonium sulfate precipitation and Sephadex-G-200 column chromatography. The protein was produced from *Bacillus cereus* grown in potato Dextrose Broth Medium (PDB) at 30 °C for 3 days at 100 rpm. The protein showed antagonistic effect against some fungi and yeasts. Crude extract from medium and semi-purified protein were tested in vitro against both fungi and yeasts using the disc diffusion method in order to detect the inhibitory effect of the protein. Zones of inhibition of the following diameter were found (mm) were *Alternaria alternate* (28), *Rhodotorula glutinis* (20), *Fusarium sp.* (16), *Rhizopus sp.* (15), *Penicillium digitatum* (13), *Mucor sp.* (13) and *Aspergillus niger* (10). The isolated protein was found to have a molecular weight of ~35kDa by sodium dodecyl sulfate-poly acrylamide gel electrophoresis. The data showed that the protein of *Bacillus cereus* has antifungal activity, a fact which points to the possibility of using it as a bio-control agent against some fungi, findings which emphasize the potential role of *B. cereus* as an important bio-control agent.

Keywords : *Bacillus cereus*, ~35kDa protein, molds, yeasts

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020