Abstracts

The infection and food spoilage causing microorganism acquiring resistance to the presently use antimicrobials and preservatives. The control of infection and spoilage of food caused by these microorganism demand high dose use of these antimicrobial, consequently these led to adverse effect on host and consumer. The problem of antimicrobial resistance can be solved by using potent broad spectrum antimicrobials from microorganism. The microorganism having ability to produce novel, broad spectrum antimicrobials can be present in extreme environmental habitat. The *Bacillus pumilus* is prolific producer of bioactive secondary metabolites, the extreme condition adapting *Bacillus pumilus* strain may be novel bioactive compound producer. Therefore in the present investigation the bioactive compound producer *Bacillus pumilus* strain from extreme environment were isolated and screened for antimicrobial activity against *E. coli, Staphylococcus aureus, Pseudomonas aeruginosa, Aspergillus niger* and *Aspergillus flavus* through media optimization studies. The modified Sehgal and Gibbons media was selected and used for production of bioactive secondary metabolites. The purification and characterization of bioactive compound were carried out by using analytical chemistry and spectroscopic technique. The partially characterized peptide and coumarin showed antimicrobial activity against infection and food spoilage causing microorganism viz. *E. coli, Staphylococcus aureus, Pseudomonas aeruginosa, Vibrio harveyi* and *Vibrio alginolyticus* like Bacitracin and Novobiocin. The investigation revealed that *Bacillus pumilus* JX912980 have ability to produce bioactive secondary metabolites having nature peptide and coumarin may find application for controlling infection and food spoilage caused by microorganism.

**Key Word:** Extreme environment, Secondary metabolites, *Bacillus pumilus*, Bioactive peptide and coumarin.