

Nematicidal Activity of the Cell Extract from *Penicillium Sp* EU0013 and Its Metabolite Profile Using High Performance Liquid Chromatography

Authors : Zafar Iqbal, Sana Irshad Khan

Abstract : Organic extract from newly isolated plant growth promoting fungus (PGPF) *Penicillium sp* EU0013 was subjected to bioassays including anti fungal (disc diffusion) cytotoxicity (brine shrimp lethality), herbicidal (*Lemna minor*) and nematicidal activities. Metabolite profile of the extract was also assessed using HPLC analysis with the aim to identify bioactive natural products in the extract as new drug candidate(s). The extract showed anti fungal potential against tested fungal pathogens. Growth of the Wilt pathogen *Fusarium oxysporum* was inhibited up to 63% when compared to negative reference. Activity against brine shrimps was weak and mortality up to 10% was observed at concentration of 200 $\mu\text{g. mL}^{-1}$. The extract exhibited no toxicity against *Lemna minor* frond at 200 $\mu\text{g. mL}^{-1}$. Nematicidal activity was observed very potent against root knot nematode and LC50 value was calculated as 52.5 $\mu\text{g. mL}^{-1}$ using probit analysis. Methodically assessment of metabolites profile by HPLC showed the presence of kojic acid (Rt 1.4 min) and aflatoxin B1 (Rt 5.9 min) in the mycellial extract as compared with standards. The major unidentified metabolite was eluted at Rt 8.6 along with other minor peaks. The observed high toxicity against root knot nematode was attributed to the unidentified compounds that make fungal extract worthy of further exploration for isolation and structural characterization studies for development of future commercial nematicidal compound(s).

Keywords : penicillium, nematicidal activity, metabolites, HPLC

Conference Title : ICCIS 2015 : International Conference on Chemical Industry and Science

Conference Location : Jeddah, Saudi Arabia

Conference Dates : January 26-27, 2015