

Evaluation of antibacterial potential of endophytic fungi and GC-MS: Metabolic profiling of *Talaromyces trachyspermus***Hafiza Farhat^{1*}, Faizah Urooj², Nida Sohail² and Shahid Ullah²**¹Gomal University, Pakistan²University of Karachi, Pakistan

Microorganisms are essential for human life. Since time immemorial, every process on earth has been affected by an unending ability of microorganisms to renovate the world. From the last two decades, microbes residing inside plants have gained special attention and are called endophytes. These microbes have natural potential for production of various bioactive secondary metabolites and can be directly or indirectly used as therapeutic agents against a plethora of maladies. For this purpose, endophytic fungi were isolated and identified from different healthy, wild and cultivated plants. They were tested against common laboratory bacteria (*Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Salmonella typhimurium*, *Bacillus subtilis* and *Escherichia coli*) and they showed strong antibacterial activity against pathogenic bacteria. Most effective isolates of endophytic fungi were further studied for characterization of their organic compounds. Oily n-hexane extract from mycelium and n-hexane fraction of culture filtrates of endophytic fungus *Talaromyces trachyspermus* revealed the presence of several compounds. The identification of bioactive compounds by GC-MS (Gas Chromatography-Mass Spectrometry) is based on the molecular weights, peak areas, mass fragmentations and retention times. Most of these compounds have therapeutic properties and are used in the pharmaceutical field. The major bioactive compounds, eicosane, oleic Acid, n-hexadecanoic acid, ethyl Oleate, cis-vaccenic acid, heptacosane identified from *T. trachyspermus* have been reported to possess antioxidant, antibacterial, antifungal and nematocidal properties. These results will lead to further in-depth research towards the potential use of this endophytic fungus and their bio-constituents can be further isolated and used in therapeutic applications.

Keywords: Antibacterial, n-hexane fraction, Mycelial extract, Culture filtrates, Compounds.

Biography

Hafiza Farhat Assistant Professor is affiliated to Gomal University, Dera Ismail Khan, Pakistan. She is a recipient of many awards and grants for her valuable contributions and discoveries in major area of antibacterial, n-hexane fraction research. Her international experience includes various programs, contributions and participation in different countries for diverse fields of study. Her research interests reflect in her wide range of publications in various national and international journals.

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