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Isolation of endophytic fungi presumptively taxol-producing from Mexico and Spain

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Endophytes are microorganisms that live within plant tissues without causing symptoms of disease. They are important components of plant microbiomes. Some fungal endophytes affect plant growth and plant response to pathogens, herbivores and environmental change; other produce useful or interesting secondary metabolites. The significance of fungi as unconventional sources of bioactive compounds was first realized by the discovery of penicillin from *Penicillium notatum*, almost 80 years ago (1928), by Alexander Fleming. Thus, endophytic fungi have proven to be a promising, largely untapped reservoir of natural products, with great chemical diversity. Certain endophytic fungi can produce taxol, an important chemotherapeutic agent. Since discovery of first taxol-producing fungus, it has the idea of produce taxol by fungal fermentation. Unfortunately, yields are too low still, in comparison with current commercial methods of production. In this context, we are interested in endophytic fungi taxol-producing and study the metabolic pathway of taxol in this organism. The main goal of this work was isolate and identify fungi taxol-producing from leaves and branches of yews from México and Spain. We have isolated 34 endophytic fungi and tested their ability to produce taxol by fermentation in two stages. The dichloromethane extracts from fermentations have been analyzed by HPLC and compared with authentic taxol. We found three fungi presumptively taxol-producing, however this results must be corroborated by Mass Spectrometry (MS) and Nuclear Magnetic Resonance (NMR). This will permit to carry out biochemical studies and in near future improve yields of taxol in fermentation by metabolic engineering.

Biography

Juan Moisés Galindo-Solís has completed his MSc in Biotechnology from Centro de Investigación y de Estudios Avanzados (Cinvestav) in México. Currently he is pursuing PhD at Universidad Autónoma Metropolitana in Biotechnology Department.

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