Short Communication

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Screening for anticancer-compounds producing endophytes inhabiting Egyptian medicinal plants, and metabolic engineering of their biosynthetic machineries.

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Abstract:

Unfortunately, the lower yield of bioactive metabolites is the challenge for its higher accessibility, thus, searching for alternative sources with promising producing potency is the prospective. Endophytic fungi are the potential repertoire for bioactive metabolites, thus exploring the bioactive compounds with anticancer activity was objective. 48 fungal isolates were recovered from the tested medicinal plants in Egypt, at the Enzymology and Fungal Biotechnology Lab, Zagazig University, and their potency to produce compounds with anticancer activity has been assessed using the TLC, HPLC and PCR genome mining. The chemical identity of the compounds was verified by HPLC, NMR, FTIR and LC–MS analyses as alkaloid EFBL with potential activity towards various tumor cell lines. Aspergillus fumigatus was the potent alkaloid EFBL producer as revealed from the chromatographic analyses and PCR of molecular markers. Alkaloid EFBL from A. fumigatus displayed a strong antiproliferative activity against HepG-2 and MCF-7 as revealed from the IC50 values 94.88 and 165.94 µg/ml, respectively. The productivity of Alkaloid EFBL from A. fumigatus was optimized by surface response methodology with Plackett-Burman and Faced Centered Central Composite. With the Plackett-Burman design, the yield of Alkaloid EFBL by its original media (potato dextrose broth) was higher than the Nutrition factorial design one. This is the first report exploring the feasibility of endophytic fungi for Alkaloid EFBL producing potency that could be a novel platform for industrial production.

Biography:

I have completed BSc from Zagazig University. And an advanced diploma from Suez Canal University. I am working on a master thesis in Enzymology and Fungal Biotechnology lab (EFBL) at Zagazig University. The objective of my work is screening for the presence of an anticancer compound in endophytic fungi isolated from some Egyptians medical plants and evaluate its productivity. My first paper is in the reference step. I hope to get the acceptance as soon as possible, the second is in progress. I am the team leader of EFBL which is a promising lab, we interested in studying cancer research. We are focusing on extracting compounds and enzymes with a powerful antiproliferative activity against cancer. Many researches have been done in this field under the supervision of Prof. Dr. Ashraf Sabry.

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Note: This work is partly presented at Webinar on Fungal Infections and Treatments (London UK, April 27)