Isolation and Investigation of Streptomyces Species for Anti-Bacterial/Cancer Agents

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Antibiotic resistance is a growing public health concern. This project was conducted to discover novel compounds produced by local Streptomyces species which would have the potential to address the antibiotic resistance problem. In addition, the compounds isolated were screened for cytotoxicity in a colon cancer cell line, as some Streptomyces produce compounds with anticancer activity. The Streptomyces were grown from a soil sample. They were then isolated and grown in liquid culture. The compounds that the Streptomyces synthesized were extracted from the liquid culture. Two different assays for antibiotic activity were conducted and significant activity was observed in seven of eight isolates. A growth inhibition assay on streak plates revealed antibiotic activity against both Gram positive and Gram negative organisms. A disk assay of the extracted compounds revealed activity against Gram positive organisms. To test for anticancer properties, colon cancer cells were exposed to the extracted compounds from the Streptomyces species for forty-eight hours. Cell viability was measured using an MTT proliferation assay. The results showed that the compounds reduced the viability of the cells and suggests that the compounds produced could potentially be used in a chemotherapeutic treatment.

Awards Won: