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## Antitumor metabolites from *Streptomyces* sp. KML-2 isolated from Khewra salt mines, Pakistan

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A rare bioactive *Streptomyces* strain designated as *Streptomyces* sp. KLM-2 was isolated from the Khewra salt mines, (Punjab) Pakistan. On the basis of morphological, microscopic, biochemical and physiological, characterization and by 16S rRNA gene sequencing the isolate was identified as a close member of *Streptomyces griseus* (100% similarity with *S. griseus*, Gene Bank Accession No. NR-074787). In preliminary screening, the crude extract obtained from the culture broth of this strain showed high cytotoxic activity against larvae of *Artemia salinaria* and exhibited 84% larval mortality. The same cytotoxic/antitumor behavior was observed when the crude extract was screened against three cell lines by MTT assay. The isolate exhibited significant growth inhibition of the proliferating tumorous cells with the IC<sub>50</sub> values of 12.17 µg/ml, 47.88 µg/ml and 56.12 µg/ml against HeLa, MD-BK and Vero cell lines, respectively. Based on the potent cytotoxic and antitumor activities the isolate was investigated by cultivation upto 20 liters, and subsequent solvent extraction, through an efficient Diaion HP-20 bead extraction technique and purification of the metabolites by manual column chromatography. The preparative screening yielded two pure compounds including Chromomycin SA and 1-(1H-indol-3-yl)propane- 1,2,3-triol. The results indicate that the isolate *Streptomyces* sp. KLM2 is a potent producer of the antitumor metabolites and can be exploited for the commercial production of these compounds. Further, the Khewra salt mines are a unique and untapped ecological niche and the screening of diverse microbial strains from this source can yield highly useful antitumor compounds.

### Biography

Imran Sajid completed his PhD in 2009 from University of the Punjab, Lahore, Pakistan. He has worked as guest scientist at the Institute of Organic and Biomolecular Chemistry University of Göttingen, Germany and at the Department of Chemistry University of Turku, Finland. Currently he is working as Assistant Professor, at the department of Microbiology and Molecular Genetics, University of the Punjab, Lahore, Pakistan. He is working with actinomycetes diversity of Pakistan for bioactive natural products discovery and has published about 20 research papers in reputed journals.

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