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***Streptomyces colonosanans* sp. nov., a novel actinobacterium isolated from Malaysia mangrove soil exhibiting anti-oxidative activity and cytotoxic potential against human colon cancer cell lines**Jodi Woan-Fei Law¹, Hooi-Leng Ser², Kok-Gan Chan¹ and Learn-Han Lee¹¹Monash University Malaysia Campus, Malaysia²University of Malaya, Malaysia

Statement of the Problem: In microbial drug discovery, exploration of new taxa could be an effective way to encounter new therapeutic agents. However, the search for novel *Streptomyces* from terrestrial origin has become unavailing, often due to the rediscovery of known bioactive compounds. Therefore, unique mangrove environments are the targeted area for the discovery of novel *Streptomyces* in this study. The aim of this study is to explore novel *Streptomyces* present in Sarawak mangrove soils and its bioactive potentials.

Methodology: Soil samples were collected from Sarawak mangrove forest. Strain MUSC93JT was isolated using ISP2 agar and polyphasic approach was used to determine the taxonomy of the strain. The antioxidant activity and cytotoxic activity of the strain against human colon cancer cell lines were evaluated.

Findings: MUSC93JT showed a range of phylogenetic and chemotaxonomic properties consistent with those of the members of the genus *Streptomyces*. Phylogenetic and 16S rRNA gene sequence analysis indicated that closely related strains include *Streptomyces malachitofuscus* NBRC13059T (99.2% sequence similarity), *Streptomyces misionensis* NBRC13063T (99.1%) and *Streptomyces phaeoluteichromatogenes* NRRL5799T (99.1%). The DNA-DNA relatedness values between MUSC93JT and closely related type strains ranged from 14.4±0.1 to 46.2±0.4%. The genome of MUSC93JT consists of 7,015,076bp with DNA G+C content of 69.90 mol%. The extract of MUSC93JT exhibited potent antioxidant activity up to 83.32±2.62% via SOD assay. This extract also exhibited anticancer activity against human colon cancer cell lines without significant cytotoxic effect against human normal colon cells. Chemical analysis of the extract further emphasizes the strain is producing chemo-preventive related metabolites.

Conclusion & Significance: Strain MUSC93JT represents a novel species, for which the name *Streptomyces colonosanans* sp. nov. is proposed. The type strain is MUSC93JT (=DSM102042T=MCCC1K02298T). This study demonstrated the antioxidant and cytotoxic potentials of MUSC93JT, thus, it could serve as a potentially high quality resource for drug discovery.

Biography

Jodi Woan-Fei Law is pursuing her PhD in School of Pharmacy, Monash University Malaysia Campus. She has completed her Bachelor of Science degree in Medical Bioscience from School of Science, Monash University Malaysia Campus in 2014. She has her experience and expertise on foodborne pathogen from her previous honors research project. Currently, she is interested in novel bacteria and drug discovery. Her current research project is focusing on the diversity and biosystematics of *Streptomyces* from mangrove sediments in Sarawak.

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