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SCHOOL OF PURE AND APPLIED SCIENCES

DIVISION OF RESEARCH, INNOVATION AND GRANTS (DRIG)

A seminar by: ***Dr. Paul Njenga***
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Antibiotic properties of actinomycetes isolated from Menengai Crater in Kenya

13TH April, 2021| 9:00 – 10:00 AM
Venue: Virtual

Abstract

Drug resistance is currently the leading cause of morbidity and mortality all over the world. This study was carried out to isolate and screen actinomycetes for antibiotics from Menengai Crater in Kenya. The study area was sub-divided into region A, B, C and D based on land terrain. The actinomycetes were isolated using starch casein agar (SC), Luria Bertani agar (M1) and starch nitrate agar (SN). Primary screening for antagonism was carried out using perpendicular method while secondary screening was done using disc diffusion bioassay. Extraction of the antibiotics was carried out using ethyl acetate. Sensitivity testing of the crude extracts against *Staphylococcus aureus* (ATCC 25923), *Streptococcus pneumoniae* (ATCC 49617), *Enterococcus faecalis* (ATCC 29212), *Escherichia coli* (ATCC 25922), *Pseudomonas aeruginosa* (ATCC 27853), *Proteus vulgaris* (ATCC 49990), *Alternaria citri* (ATCC 1015), *Candida albicans* (ATCC 10231), *Fusarium oxysporum* (ATCC 16608) and *Ustilago maydis* (ATCC 14826) was carried out using agar well technique. Biochemical tests and carbon source requirements were used in characterization of the selected antibiotic producers. M1 was the best agar medium for isolation of

actinomycetes. The number of actinomycetes from regions A, B, C, and D in the crater varied significantly (F= 27.50 P=0.000). Out of the 156 actinomycetes isolates, 20 isolates were positive for both primary and secondary screening for antibiotics. There was no significant difference in the zones of inhibition in primary screening of the actinomycetes for antagonistic properties against the test pathogens (P=0.0838). The zones of inhibition after secondary screening varied significantly (P=0.0089). Likewise, there was a significant difference (P=0.001338) in the zones of inhibition after exposing the pathogens to ethyl extracts of the selected antagonistic actinomycetes. There is need to purify and characterize the antimicrobials obtained from the present study.

DRIG COMMITTEE

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