

Bioactive compounds produced by *Streptomyces* sp. isolate UPMRS4 and antifungal activity against *Pyricularia oryzae*

ABSTRACT

A *Streptomyces* isolate having antifungal activity against *Pyricularia oryzae*, the causal agent of rice blast disease, was isolated from soil collected in rice fields of Tanjung Karang Selangor, peninsula Malaysia. The aim of the study was to determine the antifungal activity of *Streptomyces* sp. isolate UPMRS4 extracts against *P. oryzae* and to identify bioactive antifungal compounds produced by UPMRS4. Various solvents were used for extraction of antifungal compounds and well diffusion method was used to determine the antifungal activity of the extracts. The ethyl acetate extract demonstrated the highest activity against mycelial growth of *P. oryzae*, with an effective inhibitory concentration (EIC) of 1.562 µg/ml significantly higher compared to that of chloroform, diethyl ether, methanol, acetone, ethanol and water. Based on GC-MS and LC-MS/MS analyses, compounds with antifungal activity were detected such as (Pyrrolo[1,2-a] pyrazine-1,4-dione, hexahydro-3-(2-methylpropyl); Pyrrolo[1,2-a] pyrazine-1,4-dione, hexahydro-3-(phenylmethyl); ergotamine; amicomacin; fungichromin; rapamycin and N-Acetyl-D, L-phenylalanine. These compounds had good general antifungal activity and might have potential future agricultural applications.

Keyword: GCMS; LCMS/MS; Antifungal; *Streptomyces* sp.; Rice blast