

## INTISARI

### ANALISIS POTENSI SENYAWA ORGANIK VOLATIL *Streptomyces* sp. GMR22 DAN GMY01 SEBAGAI ANTIJAMUR DENGAN MENGGUNAKAN PENDEKATAN *GENOME MINING*

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Kelompok genus *Streptomyces* diketahui mampu menghasilkan senyawa organik volatil (SOV) yang menghambat berbagai jamur fitopatogen. *Streptomyces* sp. GMR22 dan GMY01 merupakan koleksi isolat Laboratorium Mikrobiologi Pertanian, Fakultas Pertanian, Universitas Gadjah Mada yang telah diketahui menghambat pertumbuhan jamur fitopatogen *Fusarium oxysporum* f.sp. *cubense* (Foc). Studi ini bertujuan untuk mengetahui potensi senyawa organik volatil *Streptomyces* sp. GMR22 dan GMY01 sebagai antijamur. Analisis *genome mining* menggunakan antiSMASH 6.1.0 menunjukkan isolat GMR22 dan GMY01 masing-masing memiliki 67 dan 27 kluster gen yang terlibat dalam biosintesis metabolit sekunder yang umumnya didominasi oleh beberapa senyawa kelompok poliketide sintetase (PKS) non-ribosomal peptide sintase (NRPS), dan terpen. Senyawa terpen merupakan senyawa bioaktif yang dikenal memiliki fungsi sebagai antijamur. Pada analisis SOV dilakukan menggunakan SPME-GC-MS, GMR22 menghasilkan senyawa dimetil disulfida (DMDS) yang diketahui mampu menghambat pertumbuhan jamur fitopatogen. Temuan ini mengungkap potensi GMR22 sebagai agen biokontrol jamur fitopatogen.

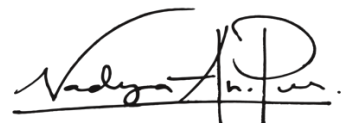
Kata Kunci : potensi antijamur, senyawa organik volatil, *Streptomyces*, *genome mining*.

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**ABSTRACT**

POTENTIAL ANALYSIS OF VOLATILE ORGANIC COMPOUND  
BY *Streptomyces* sp. GMR22 AND GMY01 AS ANTIFUNGAL  
USING GENOMEMINING APPROACH.

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Genus *Streptomyces* is well known to be able to produce volatile organic compounds (VOC) which can inhibit various phytopathogenic fungi. *Streptomyces* sp. GMR22 and GMY01 are a collection of isolates from the Laboratory of Agricultural Microbiology, Faculty of Agriculture, Gadjah Mada University which in previous study have been known to inhibit *Fusarium oxysporum* f.sp. *cubense* (Foc). This study aims to determine the potential of volatile organic compounds *Streptomyces* sp. GMR22 and GMY01 as antifungals. Genome mining analysis using antiSMASH 6.1.0 showed each isolates GMR22 and GMY01 had 67 and 27 gene clusters involved in the biosynthesis of secondary metabolites which were generally dominated by non-ribosomal peptide synthase (NRPS), polyketide synthetase (PKS) compounds, and terpene. Terpene are bioactive compounds known to have antifungal functions. In VOC analysis performed using SPME-GC-MS, GMR22 produces dimethyl disulfide (DMS) compound which is known to be able to inhibit the growth of phytopathogenic fungi. These findings reveal the potential of GMR22 as a phytopathogenic fungal biocontrol agent.

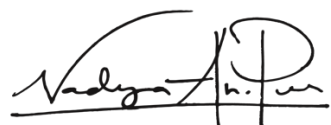
Keywords: antifungal potential, volatile organic compounds, *Streptomyces*, genome mining.

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