

**KEMAMPUAN *Streptomyces* spp. DALAM MENGHAMBAT
PERTUMBUHAN MIKROB PATOGEN TULAR TANAH:
PENGARUH MEDIA DAN WAKTU PERTUMBUHAN**

(Capability of *Streptomyces* Spp in Inhibiting Soil Borne Microbial Pathogens:
the Influence of Growth Media and Incubation Times)

Yulin Lestari¹⁾, Yundatul Ulya¹⁾, Rasti Saraswati²⁾

¹⁾Dep. Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam IPB

²⁾ Balai Penelitian Tanah, Litbang Pertanian Bogor

ABSTRAK

Streptomyces spp. berpotensi digunakan sebagai agen pengendali hayati melalui kemampuannya dalam menghasilkan beragam senyawa antimikrob. Produksi senyawa antimikrob dapat dipengaruhi oleh faktor eksternal seperti nutrisi media dan waktu inkubasi. Penelitian ini bertujuan mengkaji kemampuan *Streptomyces* spp. dalam menghambat mikroba patogen tular tanah yang dipengaruhi media pertumbuhan dan waktu inkubasi. Digunakan dua macam media: ISP 4 dan media modifikasi molase-kedelai, waktu inkubasi (5, 10, dan 15 hari). LSW05, LBR02, dan PS4-16 menghasilkan senyawa antimikrob dengan baik pada media molase-kedelai dibandingkan ISP4. Aktivitas senyawa antimikrob tertinggi diperoleh setelah inkubasi 15 hari pada suhu ruang. Ketiga isolat uji mampu menghambat bakteri patogen (*Xanthomonas oryzae*) dan cendawan patogen (*Fusarium oxysporum*). Kemampuan *Streptomyces* spp. menghasilkan senyawa antimikrob dipengaruhi oleh kondisi pertumbuhan.

Kata kunci : *Streptomyces* spp., senyawa antimikrob, mikroba patogen tular tanah, kondisi pertumbuhan.

ABSTRACT

Streptomyces spp. has the potency to be used as an agent of biological control through their capability to produce various anti microbial compounds. The production of anti microbial compounds can be influenced by nutrition of culture media and incubation times. This research aimed to study the capability of *Streptomyces* spp. in inhibiting soil borne microbial pathogen influenced by growth media and incubation times. Two tested media i.e: ISP4 and modified molasses-soy bean meal media; and 5, 10, and 15 days of incubation times. Three local isolates of *Streptomyces* namely LSW05, LBR02 and PS4-16 grew better and produced more anti microbial activity when they grown using modified molasses-soy bean meal media compared with that using ISP4. The highest anti microbial activity was obtained at 15 days incubation at room temperature. The three selected *Streptomyces* isolates was able to inhibit bacterial pathogen (*Xanthomonas oryzae*) and fungal pathogen (*Fusarium oxysporum*). Three local isolates of *Streptomyces* spp. produce antimicrobial compounds, and its production can be stimulated by giving suitable environmental growth conditions.

Keywords : *Streptomyces* spp., anti microbial compounds, soil borne microbial pathogen, growth conditions.