## ABSTRACT

### POTENTIAL EXTRACT *Streptomyces sp. strain* i18 AS ANTIBIOTIC AGAINST *Escherichia coli*

**BY**

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**Background:** Antibiotic resistant microbes (MRA) are microbes that are able to resist the effects of antibiotics, so that these microbes continue to grow. Results of Antimicrobial Resistant in Indonesia (AMRIN-Study) research. In 2494 individuals in Indonesia, showed that 43% of *Escherichia coli* were resistant to various types of antibiotics such as ampicillin, cotrimoxazole and ciprofloxacin. This study shows that the problem of antibiotic resistance also occurs in Indonesia. *Escherichia coli* has become a pathogen that is widely found in food and beverages that can cause diarrhea, hemorrhagic colitis and hemolytic uremic syndrome in humans. One source of antibiotic secondary metabolites can be derived from the genus *Streptomyces*.
**Objective:** To determine the potential of *Streptomyces sp strain* i18 extract as an antibiotic against *Escherichia coli* bacteria
**Method:** This research consisted of the phytochemical test phytochemical test the diameter of the inhibition zone test of the well method, the Minimum Inhibitory Concentration (MIC), Minimum Killing Rate (KBM) with the extract of *Streptomyces sp strain* i18 with concentrations of 5%, 10%, 20%, 40%, 80%, aquadest as a negative control and ciprofloxacin as a positive control on the growth of *Escherichia coli* bacteria**.**
**Result:** There was no diameter of inhibition zone, MIC and MBC on *Escherichia coli* bacteria by the extract of *Streptomyces sp strain* i18, the phytochemical test results show that the extract of *Streptomyces sp strain* i18 contains secondary metabolites in the form of saponins, triterpenoids and anthraquinone glycosides.
**Conclusion:** The extract of *Streptomyces sp strain* i18 did not have antibiotic potential against *Escherichia coli*.



**Keyword:** *Streptomyces sp strain* i18, Antibiotics, *Escherichia coli*

## ABSTRAK

# POTENSI EKSTRAK *Streptomyces sp. strain i18* SEBAGAI ANTIBIOTIK TERHADAP BAKTERI *Escherichia coli*

**Oleh**

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**Latar Belakang:** Mikroba resisten antibiotik (MRA) merupakan mikroba yang mampu melawan efek antibiotik, sehingga mikroba tersebut tetap tumbuh. Hasil penelitian A*ntimicrobial Resistant in Indonesia* (AMRIN-*Study*). Pada 2494 individu di indonesia, menunjukan bahwa 43% *Escherichia coli* resisten terhadap berbagai jenis antibiotik seperti ampisilin, kotrimoksazol dan siprofloksasin. Penelitian ini menunjukan bahwa masalah resistensi antibiotik juga terjadi di Indonesia. *Escherichia coli* sudah menjadi patogen yang banyak terdapat pada makanan dan minuman yang dapat menyebabkan diare, kolitis perdarahan dan *hemolytic uremic syndrome* pada manusia. Salah satu sumber metabolit sekunder yang bersifat antibiotik dapat berasal dari genus S*treptomyces*.
**Tujuan:** Untuk mengetahui potensi ekstrak *Streptomyces sp strain* i18 sebagai antibiotik terhadap bakteri *Escherichia coli*.
**Metode:** Penelitian ini terdiri dari ui fitokimia, uji diameter zona hambat metode sumuran, uji Kadar Hambat Minimum (KHM), Kadar Bunuh Minimum (KBM) dengan bahan uji ekstrak *Streptomyces sp strain* i18 dengan konsentrasi 5%, 10%, 20%, 40%, 80%, aquadest sebagai kontrol negatif dan siprofloksasin sebagai kontrol positif terhadap pertumbuhan bakteri *Escherichia coli*.
**Hasil:** Tidak terdapat diameter zona hambat, KHM dan KBM pada bakteri *Escherichia coli* oleh ekstrak *Streptomyces sp strain* i18, hasil uji fitokimia menunjukkan ekstrak *Streptomyces sp strain* i18 memiliki kandungan metabolit sekunder berupa saponin, triterpenoid dan anthrakuinon glikosida.
**Kesimpulan:** Ekstrak *Streptomyces sp strain* i18 tidak memiliki potensi antibiotik terhadap bakteri *Escherichia coli*.



**Kata Kunci:** *Streptomyces sp strain* i18, Antibiotik, *Escherichia coli*