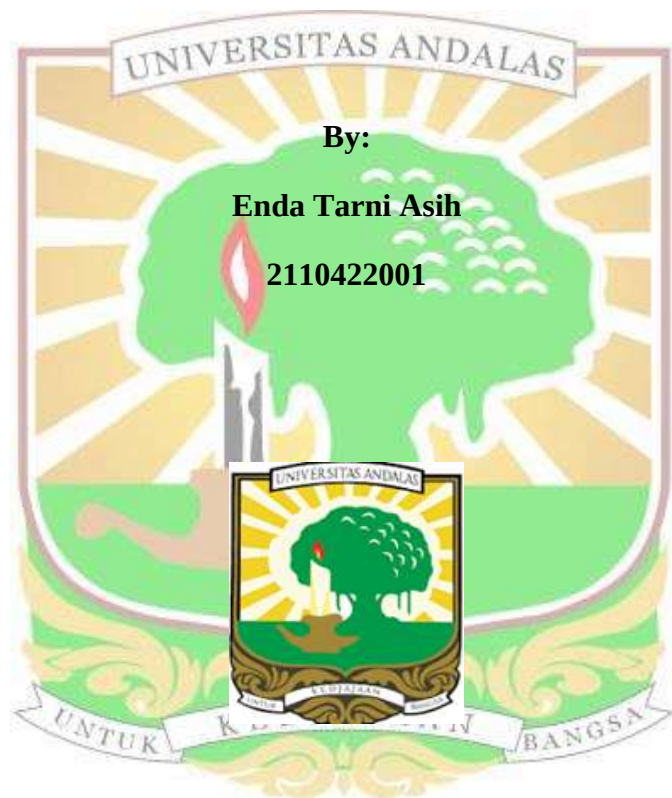


**ISOLATION AND SCREENING OF POTENTIAL
THERMOPHILIC BACTERIA PRODUCING ANTIBIOTICS
IN CUPAK AND BATU BAJANJANG GEOTHERMAL AREAS,
SOLOK REGENCY**

UNDERGRADUATE THESIS



By:

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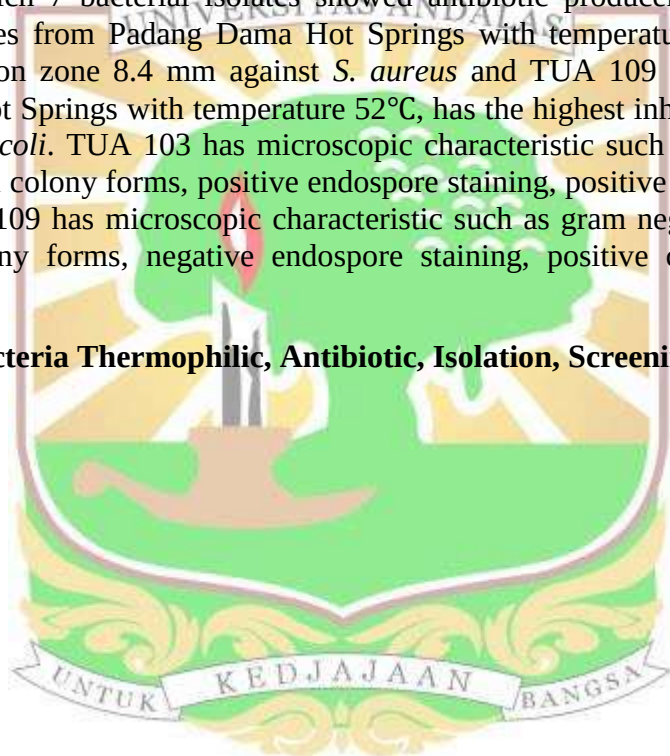
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ABSTRACT

Research on Isolation and Screening of thermophilic bacteria producing antibiotics from Cupak and Batu Bajanjang Geothermal areas, Solok Regency has been carried out at the Laboratory of Biotechnology, UPT Biota Sumatera, Andalas University since November 2024 until February 2025. Bacteria were Isolated from hot springs at the Cupak and Batu Bajanjang, Solok Regency. This study aims to obtain thermophilic bacteria and obtain characterization of thermophilic bacteria producing antibiotic. This study used purposive sampling method based on gradient temperatures in hot springs which ranged from 45 °C - 55°C. Bacterial colonies were inoculated using Nutrient Agar (NA). The result isolation of this study obtained 14 isolates, of which 7 bacterial isolates showed antibiotic producer. The TUA 103 isolate originates from Padang Dama Hot Springs with temperature 54°C, has the highest inhibition zone 8.4 mm against *S. aureus* and TUA 109 isolate originates from Garara Hot Springs with temperature 52°C, has the highest inhibition zone 6.56 mm against *E. coli*. TUA 103 has microscopic characteristic such as gram positive properties, basil colony forms, positive endospore staining, positive catalase test, and motility. TUA 109 has microscopic characteristic such as gram negative properties, diplobacil colony forms, negative endospore staining, positive catalase test and motility.

Keywords: Bacteria Thermophilic, Antibiotic, Isolation, Screening



ABSTRAK

Penelitian tentang Isolasi dan Skrining bakteri termofilik penghasil antibiotik dari daerah Geothermal Cupak dan Batu Bajanjang, Kabupaten Solok telah dilakukan di Laboratorium Bioteknologi, UPT Biota Sumatera, Universitas Andalas sejak November 2024 hingga Februari 2025. Penelitian ini bertujuan untuk memperoleh bakteri termofilik dan mendapatkan karakterisasi bakteri termofilik penghasil antibiotik. Penelitian ini menggunakan metode *purposive sampling* berdasarkan gradien suhu di mata air panas yang berkisar antara 45°C - 55°C. Koloni bakteri diinokulasi menggunakan Nutrient Agar (NA). Hasil isolasi dari penelitian ini diperoleh 14 isolat, dimana 7 isolat bakteri penghasil antibiotik. Isolat TUA 103 berasal dari Air Panas Padang Dama dengan suhu 54°C, memiliki zona hambat tertinggi 8,4 mm terhadap *S. aureus* dan isolat TUA 109 berasal dari Air Panas Garara dengan suhu 52°C, memiliki zona hambat tertinggi 6,56 mm terhadap *E. coli*. TUA 103 memiliki karakteristik mikroskopis seperti sifat gram positif, bentuk koloni basil, pewarnaan endospora positif, uji katalase positif, dan motilitas. TUA 109 memiliki karakteristik mikroskopis seperti sifat gram negatif, bentuk koloni diplobasil, pewarnaan endospora negatif, uji katalase positif, dan motilitas.

Kata Kunci: Bakteri Termofilik, Antibiotik, Isolasi, Skrining

