

**ISOLASI DAN IDENTIFIKASI BAKTERI ENDOFIT**  
**PADA LIMBAH DAUN KAYU PUTIH**  
**(*Melaleuca cajuputi* Powell)**

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**ABSTRAK**

Kayu putih (*Melaleuca cajuputi* Powell) merupakan jenis tumbuhan yang terdapat hampir di seluruh dataran Indonesia. Daun dan ranting kayu putih dapat dimanfaatkan sebagai bahan baku farmasi karena dapat menghasilkan minyak atsiri melalui proses penyulingan. Minyak atsiri pada daun kayu putih memiliki kandungan sineol yang berfungsi sebagai zat antibakteri. Proses industri minyak kayu putih menyebabkan peningkatan produksi minyak atsiri dan limbah buangan. Di alam, limbah hasil penyulingan daun kayu putih sulit diurakan oleh mikroba tanah dikarenakan kandungan sineol dan lignoselulosa yang tinggi. Kesadaran masyarakat akan pemanfaatan limbah penyulingan daun kayu putih pun masih sedikit, menyebabkan penumpukan limbah yang terus bertambah. Tujuan penelitian ialah mengetahui bakteri endofit yang terdapat pada limbah daun kayu putih. Sampel diambil dari pabrik kayu putih Jatimunggul Indramayu dengan umur limbah 0, 2 dan 4 bulan. Metode yang dilakukan adalah melakukan uji secara makroskopis, mikroskopis serta uji biokimia. Terdapat 10 isolat yang berhasil diisolasi dan setelah melalui tahap identifikasi, isolat tersebut diidentifikasi sebagai *Bacillus* sp. *Bacillus* sp. diketahui dapat memproduksi enzim selulase yang berfungsi mempercepat proses degradasi limbah serta mampu menghasilkan enzim protease yang dapat meningkatkan kandungan protein pada limbah penyulingan daun kayu putih.

**Kata kunci:** *Bacillus* sp., Endofit, Isolasi, Identifikasi, *Melaleuca cajuputi* Powell, Limbah

**ISOLATION AND IDENTIFICATION OF  
ENDOFIT BACTERIA in WASTE OF CAJUPUTI LEAVES  
(*Melaleuca cajuputi* Powell)**

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**ABSTRACT**

Cajuput species (*Melaleuca cajuputi* Powell) is a type of plant that is almost throughout the plains of Indonesia. Leaves and twigs of Cajuput can be used as pharmaceutical raw materials because it could produce essential oils through a distillation process. Essential oils on Cajuput leaves contain cineol which functions as an antibacterial agent. The industrial process of eucalyptus oil causes an increase in the production of essential oils and waste wastes. In nature, waste from distillation of Cajuput leaves is difficult to be decomposed by soil microbes due to the high content of cineol and lignocellulose. Public awareness of the utilization of waste of Cajuput leaves is weak, causing accumulation of waste problems. The purpose of this study was to find out the endophytic bacteria in the waste of Cajuput leaves and for matters relating to the distillation of Cajuput leaves. Cajuput leaves waste is taken from East Java Cajuput refining industry, Jatimunggul Indramayu with waste age 0, 2 and 4 months. The method used is test macroscopic, microscopic and biochemical test. There were 10 isolates that were successfully isolated and after going through identification stage, the isolates was identified as *Bacillus* sp. *Bacillus* sp. known produce cellulase enzymes which function to accelerate the process of waste degradation and are able to produce protease enzymes that can improve protein content on waste of Cajuput leaves.

**Keywords:** *Bacillus* sp., Endophytic, Isolation, Identification, *Melaleuca cajuputi* Powell, Waste.



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