

Isolasi dan Seleksi Kapang Endofit Penghasil Antimikroba pada beberapa Tanaman Obat Tradisional Indonesia

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Abstrak

Istilah endofit mengacu pada mikroorganisme yang sebagian atau keseluruhan siklus hidupnya berada dalam jaringan tanaman inang. Penelitian ini dilakukan untuk mengisolasi dan menyeleksi kapang-kapang endofit yang memiliki kemampuan memproduksi senyawa antimikroba. Kapang endofit yang diseleksi adalah hasil isolasi dari empat belas tanaman obat Indonesia. Untuk mendapatkan ekstrak atau larutan uji, isolat-isolat tersebut difermentasi dengan media cair dan hasilnya disentrifugasi. Seleksi dilakukan dengan mengukur diameter zona hambatan yang dihasilkan larutan uji isolat terhadap mikroba uji. Seleksi antimikroba dilakukan terhadap dua galur bakteri yaitu *Bacillus subtilis* dan *Escherichia coli*, dan terhadap dua galur jamur patogen, *Candida albicans* dan *Aspergillus niger*. Didapatkan tujuh isolat yang memiliki aktivitas antimikroba. Diantaranya empat isolat aktif menghambat pertumbuhan *A. niger*, dan satu isolat menghambat pertumbuhan *C. albicans*. Tiga isolat memiliki aktivitas menghambat pertumbuhan *B. subtilis*, dan dua isolat aktif menghambat *E. coli*. Terhadap larutan uji dari tujuh isolat yang memiliki aktivitas antimikroba ini kemudian dilakukan Kromatografi Lapis Tipis dengan pelarut n-butanol, etil asetat, dan n-heksana. Selanjutnya dilakukan uji antimikroba terhadap seluruh bercak yang dihasilkan pada pelat KLT. Didapatkan empat bercak yang menunjukkan aktivitas antimikroba. Satu berca.

.....The term endophytic refers to the microorganism that during a more or less long period of their life, colonize in their host plants tissues. This research had been done to select the endophytic fungi with ability to produce antimicrobial agents. Endophytic fungi which had been selected were the result of isolation from fourteen Indonesian medicinal plants. In order to get the extract liquid, at first isolates were fermented using liquid media, and then the harvested cultures were centrifuged. The bioassay to determine the antimicrobial activity of the isolates used two strains of bacteria, *Bacillus subtilis* and *Escherichia coli*, and also two strains of pathogenic fungi, *Aspergillus niger* and *Candida albicans*. The diameter of the clear zone on the test media produced by the extracts of isolates had been measured to determine the activity of the isolates. Seven isolates showed antimicrobial activity. Four of them were active against *A. niger* and one of them against *C. albicans*. Three isolates were active against *B. subtilis*, and two isolates against *E. coli*. After the bioassay, the active extracts liquid were eluted with Thin Layer Chromatography method using n-buthanol, ethyl acetate, and n-hexane as the eluents. Then, the result spots were used to examine their antimicrobial activity. Four spots were recognized to have activity against test microbes. One spot was eluted using n-buthanol, and three spots using ethyl acetate.