Skrining Bakteri Endofit Indigenos Asal Sijunjung Untuk Meningkatkan Pertumbuhan Kelapa Sawit (*Elaeis guineensis* Jacq) Di *Pre Nursery*

TESIS

Oleh

DYAH WULAN SARI
1520241004

PEMBIMBING :

Prof. Dr. Ir. Warnita., MP

Prof. Dr. Ir. Reni Mayerni., MP

PROGRAM PASCASARJANA
FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
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ABSTRAK

Bakteri endofit merupakan mikroorganisme menguntungkan yang berinteraksi dengan tanaman inang tanpa menyababkan gangguan pada tanaman inangnya. Keberadaan bakteri endofit banyak mendapat perhatian karena potensinya dalam memacu pertumbuhan tanaman. Kelapa sawit adalah salah satu komoditi perkebunan yang memiliki rendeman tertinggi dibandingkan dengan minyak nabati lainya, dan Kabupaten Sijunjung ialah salah satu Kabupaten yang perkembangan perkebunan kelapa sawit cukup signifikan dengan produktifitas yang tinggi. Dalam mengusahakan perkebunan kelapa sawit yang berproduktifitas tinggi dengan biaya yang efesien maka digunakan bakteri endofit yang berperan sebagai PGPR (*Plant Growth Promoting Rhizobacteria)*. Penelitian ini bertujuan untuk memperoleh Isolat bakteri endofit terbaik yang berasal dari perakaran kelapa sawit Sijunjung. Pengambilan sampel akar kelapa sawit secara *proposive random sampling* pada tanaman tanaman sawit yang terlihat sehat dan berproduksi baik Sebanyak 46 isolat di karakterisasi Bentuk Irregular 36 isolat, Circular 5 isolat, Filamentous 4 isolat dan Rhizoid 1 isolat. Margin koloni Undulate 24 isolat, Entire 10 isolat, Filaform 6 isolat, Lobate 4 isolat, Curled 2 isolat. Elevasi koloni bakteri Flat 23 isolat, Raised 25 isolat, Convex dan Umbonate 4 isolat. Warna koloni bakteri endofit yang dominan adalah krem 24 isolat, putih 13 isolat, merah 8 isolat, dan kuning 1 isolat. Ukuran terbesar koloni bakteri adalah 6,3 cm. Reaksi gram positif 34 isolat dan gram negatif 12 isolat. Kemudian 5 isolat menunjukan reaksi hipersensitif positif. Isolat dengan hipersensitif positif tidak diuji secara *in planta*. 12 isolat mampu melarutkan Fosfat dan seluruh bakteri memproduksi hormon IAA dari konsentrasi 0,26 sampai 6,67 ppm. Isolat bakteri endofit indigenos terbaik adalah SJ D5.1.3; SJ C4.2.1; SJ D5.2.3; SJ C5.2.4; SJ C5.1.2; C5.2.2 yang berpengaruh terhadap tinggi tanaman, luas daun total, bobot segar bibit dan akar, bobot kering bibit dan akar.

Kata kunci : skrening, indigenous, kelapa sawit, bakteri endofit, Sijunjung.

Screening Indigenous Endophytic Bacteria from Sijunjung to Increase Growth Palm Oil (Elaeis guineensis Jacq) In Pre Nursery

ABSTRACT

Endophytic bacteria are beneficial microorganisms that interact with host plants without causing disruption to their host plants. The presence of endophytic bacteria has received considerable attention due to its potential in regulating plant growth. Palm Oil is one of the plantation commodities that has the highest rendemen compared with other vegetable oils, and Sijunjung is one of the districts where the development of palm oil plantations is quite significant with high productivity. In seeking the high productivity of palm oil plantations with efficient cost, endophytic bacteria are used as PGPR (Plant Growth Promoting Rhizobacteria). This study aims to obtain the best endophytic bacterial isolates derived from palm oil roots in Sijunjung. Sampling of palm oil roots proposive random sampling in healthy plants and high production. A total of 46 isolates were characterized in the Irregular Form as many as 36 isolates, 5 isolates were Circular, 4 isolates were Filamentous and 1 isolates was Rhizoid. There were 24 isolates of Margin colony Undulate, 10 isolates were Entire, 6 isolates were Filaform, 4 isolates were Lobate, 2 isolates were Curled. There were also 23 isolates of Elevation of bacterial colonies Flat, 25 isolates were Raised, 4 isolates were Convex and Umbonate. The colour of dominant colonies of endophytic bacteria were cream as many 24 isolates, 13 white isolates , 8 red isolates, and 1 yellow isolates. The largest size of bacterial colonies was 6.3 cm. Gram-positive reactions were 34 isolates and 12 gram-negative isolates. Then 5 isolates showed positive hypersensitive reactions. The isolates with positive hypersensitivity were not tested in planta. 12 isolates were able to dissolve phosphate and all bacteria produce IAA hormone from concentration 0.26 to 6.67 ppm. The best indigenous endophytic bacterial isolates were SJ D5.1.3; SJ C4.2.1; SJ D5.2.3; SJ C5.2.4; SJ C5.1.2; C5.2.2 which has significant effect on plant height, total leaf wide, weight of fresh seed and root also weight of dry of seed and root.

Keyword : Screening, Indigenous, Palm oil, Endophytic Bacteria, Sijunjung