

## Analisis kemampuan biodegradasi hidrokarbon isolat bakteri SM1\_7 dari habitat mangrove = Analysis of hydrocarbon biodegradation ability of bacteria isolate SM1\_7 from mangrove habitat

Husna Septia Putri, author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20431660&lokasi=lokal>

---

### Abstrak

#### <b>ABSTRAK</b><br>

Bakteri pendegradasi senyawa hidrokarbon dapat diisolasi dari daerah yang terkontaminasi polutan, seperti habitat mangrove. Isolat bakteri SM1\_7 telah diisolasi dari habitat mangrove Suaka Margasatwa Muara Angke, Jakarta Utara. Penelitian bertujuan untuk menganalisis kemampuan degradasi senyawa hidrokarbon dan mengarakterisasi isolat bakteri SM1\_7. Pengukuran pertumbuhan dilakukan dengan metode viable plate count dan analisis senyawa hidrokarbon dengan GC/MS. Karakterisasi bakteri dilakukan dengan pengecatan Gram, pengamatan morfologi, dan karakterisasi biokimia. Hasil pengukuran pertumbuhan menunjukkan bahwa isolat bakteri SM1\_7 mampu tumbuh di medium Bushnell Haas + 1% (v/v) minyak diesel yang menunjukkan peningkatan  $2,3 \times 10^9$  CFU/mL menjadi  $3,31 \times 10^{11}$  CFU/mL setelah inkubasi 12 jam. Isolat bakteri SM1\_7 mampu mendegradasi senyawa hexadecane (C<sub>16</sub>H<sub>35</sub>) sebanyak 13,95%, heptadecane (C<sub>17</sub>H<sub>36</sub>) sebanyak 17,66%, dan eicosane (C<sub>20</sub>H<sub>42</sub>) sebanyak 19,14%. Hasil karakterisasi fenotipik bakteri menunjukkan bahwa isolat bakteri SM1\_7 diduga termasuk ke dalam genus *Pseudomonas*.

<hr>

#### <b>ABSTRACT</b><br>

Hydrocarbon degrading bacteria can be isolated from contaminated areas, such as mangrove. Bacteria isolate SM1\_7 has been isolated from mangrove habitat Suaka Margasatwa Muara Angke, North Jakarta. The objectives of the research is to analyze the capability of isolate SM1\_7 for degrading hydrocarbons and characterize bacterial isolate SM1\_7. Growth measurements was performed using viable plate count method and analysis of hydrocarbon degradation was carried out using GC/MS. Bacterial characterization was done using Gram stains, observing morphological characteristics, and analysis of biochemical characteristics. The results show that bacteria isolate SM1\_7 is able to grow in Bushnell Haas medium + 1% (v/v) diesel oil displaying an increase from  $2,3 \times 10^9$  CFU/mL to  $3,31 \times 10^{11}$  CFU/mL after 12 hours incubation. Bacteria isolate SM1\_7 is able to degrade hexadecane (C<sub>16</sub>H<sub>35</sub>) 13,95%, heptadecane (C<sub>17</sub>H<sub>36</sub>) 17,66%, and eicosane (C<sub>20</sub>H<sub>42</sub>) 19,14%. The result of phenotypic characterization showed that bacteria isolate SM1\_7 is assumed to be from genus *Pseudomonas*.