RINGKASAN

Pencemaran minyak bumi di laut pada daerah Perairan Barat Sumatera berasal dari aktivitas transportasi perkapalan. Komponen utama penyusun minyak bumi adalah *Polycyclic Aromatic Hydrocarbon* (PAH) yang sulit didegradasi dan bersifat mutagenik, karsinogenik dan toksik. Beberapa genus bakteri diketahui mampu mendegradasi senyawa tersebut dengan memanfaatkannya sebagai sumber karbon dan energi. Tujuan penelitian adalah mengetahui karakteristik isolat bakteri asal Perairan Barat Sumatera yang mampu mendegradasi minyak bumi dan PAH, mengetahui isolat bakteri pendegradasi minyak bumi yang toleran terhadap lingkungan *zero* salinitas dan mengetahui kemampuan isolat bakteri asal Perairan Barat Sumatera dalam mendegradasi komponen *Polycyclic Aromatic Hydrocarbon* (PAH). Penelitian dilakukan secara deskriptif, isolasi bakteri menggunakan medium *Marine Agar* 10% ditambah dengan *crude oil*, bakteri yang tumbuh selanjutnya ditanam pada medium *Plate Count Agar* 10% yang ditambah *crude oil*, bakteri yang potensial diuji sublimasi menggunakan medium ONR7-a dan isolat bakteri yang mampu mendegradasi lebih dari satu senyawa PAH dikarakterisasi dan diidentifikasi. Hasil penelitian diperoleh sebanyak 448 isolat bakteri diperoleh dari Perairan Barat Sumatera. Sebanyak 27 isolat mampu mendegradasi minyak bumi dan mampu tumbuh pada medium *zero* salinitas. Sebanyak 6 isolat menunjukkan kemampuan mendegradasi komponen PAH dan isolat terbaik adalah strain 596 diidentifikasi sebagai *Flavobacterium* sp.

Kata Kunci : Polycyclic Aromatic Hydrocarbon, Hidrokarbonoklastik, Biodegradasi, Sublimasi

SUMMARY

Oil is the main fuel for human activities such as transport vessels which, if spilled can contaminate the ocean. The main component of oil is a constituent of petroleum Polycyclic Aromatic Hydrocarbon (PAH) which are difficult to degrade, mutagenic, carcinogenic and toxic. Some genus of bacteria known to degrade these compounds by using it as a source of carbon and energy. The purposes of this research were to characterise bacterial isolate from West Sumatra waters which capable of degrading oil and PAH, knowing petroleum degrading bacteria isolates were tolerant to salinity zero environment and determine the ability of bacterial isolates from West Sumatra that degrade components of Polycyclic Aromatic Hydrocarbon (PAH). The study used descriptive method, isolation of bacteria used a Marine medium containing of 10% crude oil, the grow bacteria were then platted in Plate Count medium containing of 10% crude oil, bacteria with high capability in degrading crude oil were then tested with sublimation method in ONR-7 medium. The best isolate in degrading PAH was characterized and identified. The results found 448 bacterial isolates from waters West Sumatra. A total of 27 isolates were able to degrade crude oil and they were able to grow on the medium with zero salinity. A number of 6 isolates showed the ability to degrade various components of PAH and the best isolate was identified as *Flavobacterium* sp. strain 596.

Keywords: Polycyclic Aromatic Hydrocarbon, Hydrocarbonoclastic, Biodegradation, Sublimation