ABSTRAK

Penggunaan bahan bakar minyak semakin bertambah terutama solar bagi transportasi laut. Hal itu berbanding terbalik dengan ketersediaan yang semakin menipis dan sulit didapatkan bagi nelayan terutama di pesisir pedalaman. Penggunaan bahan bakar alternatif perlu dilakukan untuk mengurangi permasalahan tersebut. Maka dilakukanlah penelitian penggunaan bahan bakar alternatif pada kapal nelayan. Penelitian bertujuan untuk mencari nilai konsumsi bahan bakar, jarak tempuh kapal, daya efektif serta efisiensi bahan bakar yang dipakai. Metode penelitian berupa pengujian lapangan dengan uji kapal memakai biodiesel B30, B50, B70 dan B100 berbahan dasar VCO (*Virgin Coconut Oil*) untuk mendapatkan nilai kecepatan kapal pada RPM tertinggi saat bergerak searah dan berlawanan arus. Dan uji teoritis untuk mendapatkan nilai daya efektif serta efisiensi biodiesel terbaik dengan acuan jarak yang ditempuh kapal. Biodiesel yang diuji menunjukkan hasil yang baik dan tidak terdapat kendala pada mesin kapal. Parameter kecepatan terbesar diperoleh biodiesel B30 sebesar 13.1 km/jam pada RPM tertinggi saat bergerak searah maupun berlawanan arus. Daya Efektif Mesin (EHP) terbesar diperoleh biodiesel B30 pada saat bergerak searah arus sebesar 1.52 kW dan berlawanan arus sebesar 1.43 kW. Konsumsi biodiesel paling rendah dihasilkan oleh biodiesel B100 sebesar 1.5 liter selama 1 jam. Jarak tempuh terjauh dihasilkan oleh biodiesel B50 sejauh 2.3 km. Dan nilai efisiensi bahan bakar terbaik dihasilkan oleh biodiesel B30 sebesar 27%.

Kata kunci: Biodiesel, VCO (*Virgin Coconut Oil*), Mesin Kapal, Performa, Alternatif.

ANALYSIS OF TESTING BIODIESEL FROM VCO (VIRGIN COCONUT OIL) ON PERFORMANCE DIESEL MARINE ENGINE

ABSTRACT

The use of fuel oil increased especially solar for sea transport. It was inversely with that depleting and difficult obtained fishermen especially in coastal inland. The use of alternative fuel meeds to be done to reduce these problems. So pleased research the use of alternative fuel on fishing vessel. Research aimed at sought value consumptionof fuel, mileage ship, the effective as well as fuel efficiency used. The methodology testing field of ship wearing biodiesel B30, B50, B70 and B100 based VCO (Virgin Coconut Oil) to get the speed of ships at highest RPM while moving in line and opposite sea wave. And the theoretical to get a power effective and efficiency biodiesel the reference the distance traveled ship. Biodiesel tested show a good result and there is not constraints on the ship's engine. Speed parameters largest obtained biodiesel B30 as much as 13.1 km/h on the hinghest RPM while moving in line and opposite sea wave. Effective Power an Engine (EHP) largest obtained biodiesel B100 while moving in line current sea wave of as much as 1.52 kW and opposite a sea wave as much as 1.43 kW. The lowest consumption biodiesel produced by biodiesel B100 as much as 1.5 liters for 1 hour. Of the distance traveled fartherst produced b biodiesel B50 as far as 2.3 km. And the best value of fuel efficiency produced by biodiesel B30 as much as 27%.

Keywords: *Biodiesel, VCO (Virgin Coconut Oil), Marine Engine, Performance, Alternative.*