

PERTADEx FUEL DIESEL ENGINE PERFORMANCE TEST WITH VARIATIONS OF BIODIESEL MIXTURE FROM NYAMPLUNG SEED OIL (*Callophyllum Inophyllum*)

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ABSTRACT

This research was conducted with the aim to determine the effect of a mixture of pertadex and biodiesel from nyamplung seed oil on engine torque and power. The research method used in this study is an experimental method in which this method is used to test the performance of diesel engines using a mixture of biodiesel and Pertamina DEX fuel with a composition of B10 (90% Pertamina DEX and 10% biodiesel), B20 (80% Pertamina DEX and 20 % biodiesel), B30 (70% Pertamina DEX and 30% biodiesel), and B50 (50% Pertamina DEX and 50% biodiesel). This test was conducted to determine the effect of Pertamina DEX fuel mixture with biodiesel from nyamplung oil on diesel engine performance. The results of the study show that the addition of Biodiesel from nyamplung seed oil to Pertadex, B20 (80% Pertadex and 20% Biodiesel) affects the value of engine torque where the average torque value is the highest, namely 0.404 Nm and at 1800 rpm the engine speed reaches a maximum torque of 0.445Nm. Meanwhile, the lowest torque value was generated from a variation of the B50 biodiesel mixture (50% Pertadex and 50% Biodiesel) which was 0.372 Nm and the peak torque was at 1600 rpm engine speed with a torque value of 0.390 Nm. The addition of biodiesel from nyamplung seed oil to Pertadex, B20 (80% Pertadex and 20% Biodiesel) affects the engine power value which results in the highest average engine power of 83.82 Watt, while the lowest average engine power value is produced in mixed variations biodiesel B50 (50% Pertadex and 50% Biodiesel) which is 77.28 Watt. Each increase in engine speed, the value of the power generated will increase.

Keyword : Diesel engine, Pertadex, Biodiesel, Oil nyamplung