

***Effect of Pertamina Dex Fuel Blend with Nyamplung Oil Bio Diesel
(Callophyllum Innophyllum) on Diesel Engine
Performance***

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ABSTRACT

This research was conducted with the aim of determining the effect of the Pertadex blend with biodiesel from Nyamplung oil on torque, engine power, and specific fuel consumption. The research method used in this study was an experimental method, where this method was employed to test the performance of a 400-watt diesel engine load using various blends of biodiesel and Pertamina Dex with compositions of B5 (95% Pertamina DEX and 5% biodiesel), B10 (90% Pertamina DEX and 10% biodiesel), and B15 (85% Pertamina DEX and 15% biodiesel). These tests were conducted to investigate the effect of blending Pertamina DEX with biodiesel from Nyamplung oil on the performance of the diesel engine. The results of the study indicate that the addition of biodiesel from Nyamplung seeds to Pertadex affects the engine torque value, with the highest average value being 3.219 Nm in the B10 blend variation, and at 1600 RPM, it reaches its peak torque of 3.719 Nm. Meanwhile, the lowest torque value is produced by the B5 blend variation with a value of 3.142 Nm, and the peak torque value at the engine speed of 1600 RPM is 3,580 Nm. The B10 blend produces the highest average engine power of 663.05 watts, while the lowest average engine power is produced in the B5 biodiesel blend variation, which is 648.28 watts. With each increase in engine speed, the generated power value will increase. The addition of each percentage of biodiesel blend and Pertamina Dex affects the specific fuel consumption of the diesel engine, where the highest value of SFC is 1.817 kg/kWh and the lowest value is 1.365 kg/kWh.

Keywords: *Diesel engine, Pertamina dex, Nyamplung oil biodiesel, performance.*