ANALISIS PENGARUH CAMPURAN BIOETANOL BERBAHAN DASAR KULIT SINGKONG DENGAN PERTAMAX DAN GASOLINE 92 TERHADAP PERFORMA EMISI GAS BUANG VARIO TECNO 110cc 2010

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ABSTRACT

This study aims to analyze the effect of cassava peel-based bioethanol blends on engine performance and exhaust emissions, using Pertamax and Indomobil Gasoline 92 as base fuels. An experimental method was employed, testing fuel blends of E5, E10, and E15 with both Pertamax and Gasoline 92, resulting in six test variations. Performance testing was conducted using a dynamometer at engine speeds ranging from 3,000 to 9,000 rpm to obtain torque and power data, while exhaust emission testing utilized a gas analyzer to measure HC, CO, CO2, NOx, and lambda parameters. Each variation was tested three times, and the results were averaged for analysis. The findings indicate that increasing the bioethanol percentage tends to improve engine performance; the blend of 15 ml bioethanol and 85 ml Indomobil (E15) yielded the best performance, producing a maximum torque of 8.6 N.m and a maximum power of 7.49 hp at 6,000 rpm. Meanwhile, the blend of 10 ml bioethanol and 90 ml Pertamax produced a maximum torque of 8.46 N.m and a maximum power of 7.36 hp. The addition of bioethanol raises the fuel's octane rating and oxygen content, leading to more complete combustion, improved combustion efficiency, and the potential for reduced exhaust emissions. Thus, cassava peel-based bioethanol serves as an alternative fuel capable of enhancing engine performance while helping to mitigate the environmental impact of motor vehicle emissions.

Keywords: *cassava peel bioethanol, Pertamax, Gasoline 92, torque, power, exhaust emissions.*