ABSTRAK

Peningkatan jumlah kendaraan bermotor di Indonesia menyebabkan peningkatan konsumsi bahan bakar yang signifikan. Salah satu faktor penting yang memengaruhi efisiensi konsumsi bahan bakar dan performa mesin adalah perilaku berkendara serta kualitas dan jenis bahan bakar yang digunakan. Penelitian ini bertujuan untuk menganalisis pengaruh perilaku berkendara (agresif, normal, dan lambat) terhadap konsumsi bahan bakar serta performa mesin sepeda motor berkapasitas 110 cc dengan menggunakan campuran bahan bakar Pertamax Turbo (RON 98) dan Pertamax Green (RON 95). Campuran bahan bakar yang digunakan terdiri atas 100% Pertamax Turbo, 90% Pertamax Turbo + 10% Pertamax Green, 80% Pertamax Turbo + 20% Pertamax Green, dan 70% Pertamax Turbo + 30% Pertamax Green. Hasil penelitian menunjukkan bahwa performa mesin terbaik dalam parameter *Brake Torque* dan *Brake Power* tercapai pada perilaku berkendara agresif menggunakan 100% Pertamax Turbo dan campuran 90%+10%. Namun, efisiensi konsumsi bahan bakar (BSFC) terendah dan efisiensi termal (BTE) tertinggi diperoleh pada campuran 90%+10%, khususnya saat berkendara normal dan Lambat. Campuran 70%+30% menunjukkan kestabilan performa dalam jangka waktu lebih panjang, walaupun efisiensinya menurun secara bertahap. Sementara itu, bahan bakar 100% Pertamax Turbo menunjukkan performa yang stabil namun kurang efisien dari segi pembakaran. Dengan demikian, perilaku berkendara serta proporsi campuran bahan bakar memiliki peran signifikan dalam menentukan efisiensi dan performa mesin. Campuran 90% Pertamax Turbo dan 10% Pertamax Green direkomendasikan sebagai pilihan optimal untuk efisiensi dan kestabilan dalam penggunaan harian.

Kata Kunci: Efisiensi bahan bakar, performa mesin, perilaku berkendara, RON 98, RON 95, sepeda motor 110 cc.

ABSTRACT

The increasing number of motor vehicles in Indonesia has led to a significant rise in fuel consumption. One of the key factors influencing fuel efficiency and engine performance is driving behavior, along with the quality and type of fuel used. This study aims to analyze the impact of different driving behaviors (aggressive, normal, and Lambat) on fuel consumption and engine performance of 110 cc motorcycles using a mixture of Pertamax Turbo (RON 98) and Pertamax Green (RON 95). The fuel mixtures tested include 100% Pertamax Turbo, 90% Pertamax Turbo + 10% Pertamax Green, 80% Pertamax Turbo + 20% Pertamax Green, and 70% Pertamax Turbo + 30% Pertamax Green. The results indicate that the best engine performance, in terms of *Brake Torque* and *Brake Power*, is achieved with aggressive driving using either 100% Pertamax Turbo or the 90%+10% mixture. However, the most efficient fuel consumption (lowest BSFC) and highest thermal efficiency (BTE) were observed with the 90%+10% mixture, particularly under normal and Lambat driving conditions. The 70%+30% mixture showed stable long-term performance, although its efficiency gradually declined. Meanwhile, the 100% Pertamax Turbo fuel delivered stable power but was less efficient in combustion. Therefore, both driving behavior and fuel composition play a significant role in optimizing fuel efficiency and engine performance. The 90% Pertamax Turbo and 10% Pertamax Green mixture is recommended as the optimal choice for daily use due to its balanced efficiency and engine stability.

Keywords: Fuel efficiency, engine performance, driving behavior, RON 98, RON 95, 110 cc motorcycle.