

ANALYSIS OF SUGARCANE BAGASSE-BASED AIR FILTER WITH ACTIVATED CARBON ADDITION ON THE PERFORMANCE OF A 110CC FI MOTORCYCLE ENGINE

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ABSTRACT

In the combustion process, the role of air is very important because without air, the combustion process cannot occur. Therefore, to ensure that the air entering the combustion chamber remains clean, an air filter is necessary. An air filter is a crucial component in motor vehicle engines that functions to filter dust particles and other impurities from entering the combustion chamber. Dust particles that enter the combustion chamber can cause the engine to operate inefficiently and decrease the motorcycle's performance. This study creates an air filter made from sugarcane bagasse with the addition of activated carbon. Performance tests on a 110cc Scoopy motorcycle show that the sugarcane bagasse + activated carbon air filter provides the highest torque and power, which are 8.25 Nm at 5938 rpm and 7.7 Hp at 6967 rpm, respectively. The order of torque from highest to lowest is: the sugarcane bagasse + activated carbon filter at 8.25 Nm, the sugarcane bagasse filter at 8.18 Nm, and the standard filter at 7.72 Nm. The order of power from highest to lowest is: the sugarcane bagasse + activated carbon filter at 7.7 Hp, the sugarcane bagasse filter at 7.4 Hp, and the standard filter at 7.4 Hp. For the lowest fuel consumption at an engine speed of 6000 rpm, the standard filter achieves 100ml/7.40 minutes, the sugarcane bagasse filter 100ml/7.29 minutes, and the sugarcane bagasse + activated carbon filter 100ml/6.54 minutes.

Keywords: *Air, Air Filter, Sugarcane Bagasse, Activated Carbon, Torque, Power.*