Performance Analysis of the Automatic Traditional Herbal Drink Powder Machine

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ABSTRACT

This study aims to analyze the performance of the Automatic Traditional Herbal Drink Powder Machine, which is designed to support the automated production process of powdered herbal medicine, particularly for Micro, Small, and Medium Enterprises (MSMEs). The machine has a maximum capacity of 10 kg and is equipped with an automation system consisting of a temperature sensor, digital timer, and Arduino Nano based microcontroller. Functional test were carried out using three load variations 5 kg, 8 kg, and 10 kg using a mixture of herbal extract and sugar. The test results of the 10 kg load test showed that the machine is capable of processing the mixture into powder with a maximum conversion efficiency of 55,08% and an average processing time efficiency of approximately 29,04 minutes per kilogram of powdered herbal drink. Based on validation by mechanical experts, the machine is considered feasible in terms of design, efficiency, and ease of use. This research demonstrates that the application of automation technology in the herbal drink production process can improve the effectiveness of product quality.

Key words: Automatic Traditional Herbal Drink Powder, Performance Effectiveness, Conversion Efficiency, MSMEs.