

ABSTRACT

Controlling the pH of drinking water for broiler chickens is an important aspect in maintaining the health and productivity of chickens. Inappropriate pH of drinking water can cause digestive disorders, decreased immune system, and growth disorders in broiler chickens. This study aims to design a drinking water pH control system using an Arduino microcontroller. This system consists of a pH sensor, a DC motor to stir the air, and a solenoid valve system to regulate air flow based on the measured pH parameters. In addition, this study also examines the use of natural ingredients such as papaya leaves and stems and ketapang leaves as pH lowering agents. Papaya leaves and stems contain saponins, tannins, and flavonoids which function as natural acidifying agents that can effectively lower air pH. Meanwhile, ketapang leaves (*Terminalia catappa*) are known to contain saponins, tannins, and flavonoids that can be used to lower air pH and improve the quality of drinking water for livestock. Tests show that the use of these natural ingredients is effective in lowering air pH within a safe range for broiler chickens, with a low margin of error in pH measurements. The results of the study indicate that the microcontroller-based drinking water pH control system is able to control air pH automatically and efficiently, and provides a more natural and sustainable alternative in maintaining the quality of drinking water for broiler chickens.

Keywords: Microcontroller, air pH, Papaya leaves, Ketapang leaves.