

ABSTRACT

Tofu has a high water content, which is around 80%-85%, causing a very short shelf life of about 10 hours due to microbial spoilage. Because of that, irresponsible tofu factories add formalin to the tofu-making process in order to have a longer shelf life so that they get more profit. However, formalin substances are basically not food additives (BTP), therefore formalin substances are prohibited from being used by the government because they are harmful to health. In this research, an instrument has been created that can detect the levels of formalin in tofu using a color sensor TCS3200 with formalin levels of 0 ppm, 60 ppm, 120 ppm and 180 ppm. Tofu samples were tested with Schiff's test as a reagent to determine the formalin content in tofu as a test sample. Color changes due to Schiff's reaction are processed in the form of RGB basic colors by the Arduino ATMEGA328P microcontroller. The instrument has succeeded in detecting tofu test samples containing formalin solution, namely at concentrations of 0 ppm worth 100%, 60 ppm worth 93%, 120 ppm worth 97.8% and 180 ppm worth 100%.

Keywords: tofu, formalin, Schiff reagent, TCS3200, RGB sensor, Arduino ATMEGA328P