

## ABSTRACT

*Mackerel meatballs are very easy to spoil if placed at temperatures of more than 4°C. Because it requires low room temperature to last longer, some irresponsible fishball manufacturers add borax to fishballs to make them last longer. Borax is an antiseptic that is dangerous for consumption and has been strictly prohibited by the government because it can endanger health. For this reason, this research created an instrument that can detect borax levels in mackerel meatballs with variations in borax levels of 0 gr, 1 gr, 2 gr, 3 gr, 4 gr and 5 gr using curcumin reagent which is able to detect borax through color changes. Instrumentation made using the TCS3200 color sensor based on the Arduino microcontroller. The TCS3200 color sensor is used to detect color changes from mixing borax meatballs with curcumin reagent. The results of the TCS3200 color sensor selection will be selected using Arduino based on the RGB values obtained. Based on the experiments, it was found that the reliability of the instrument in selecting mackerel samples containing borax, namely at levels of 0 gr, 1 gr, 2 gr, 3 gr, 4 gr and 5 gr, respectively obtained 92%, 94%, 90%, 96%, 92% and 96%.*

**Key word:** *mackerel meatballs, borax, curcumin reagent, TCS3200 sensor, RGB, Arduino microcontroller.*