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NOWWARUT NORKAEW : EFFECT OF BENZOATE ON PRESERVING
GROUND PORK . THESIS ADVISER : WICHAI CHULAROJMONTRI. M.P.H ,
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Borax , a substance used illegally in the preservation of meat , is potentially damaging to human health when ingested . It could accumulate in the body and damage the kidney and central nervous system. A recent survey conducted by the Thai Ministry of Health concluded that there was widespread use of Borax in Thai food. The objective of this study was to assess the effectiveness of Benzoate , an alternative to Borax , for use in the food process as a preservative and establish the concentration level of Benzoate necessary to be effective. A comparison was made by comparing ground pork treated with Benzoate at concentrations of 0, 250, 500, 750 and 1,000 mg/kg to ground pork treated with Borax at concentrations of 500 and 1,000 mg/kg.

Trials were conducted at ambient temperature to ascertain levels of bacteria present and also the effects, if any, on the physical characteristic of the meat at 0 , 4 , 6 and 8 hours in three groups : treated Benzoate , Borax treated and the control group untreated. The experiment showed that overall Benzoate proved significantly effective in controlling the level of bacteria present in the meat when used in concentration of 1,000mg/kg.(p-value<0.05), followed by the use of Benzoate at 750 mg/kg. However , both concentrations were equally effective in controlling for up to 6 hours. At 4 hours, Benzoate (500 mg/kg) was effective in controlling the level of bacteria below the standard point. Benzoate (250 mg/kg) proved ineffective in controlling the level of bacteria at the standard point. Borax , at 0 hour, proved no different in controlling the level of bacteria compared to the control group , but at 8 hour , it caused a lower level of bacteria than that of the control treatment. Borax at 500 mg/kg had lower level of bacteria than at 1,000 mg/kg .

Physical assessment : Benzoate at 750 and 1,000 mg/kg proved significantly effective in preserving the original color and odor of meat (p-value < 0.05). Regarding texture , borax proved significantly effective in preserving the original characteristics. By using a photometer. Borax at 500 mg/kg has the highest redness and Benzoate at 750 and 1,000 mg/kg has shown similar redness to that of the control treatment but a slightly higher lightness value.