

**EFFECT OF SLIGHTLY ACIDIC ELECTROLYZED WATER
APPLIED IN MIST METHODS FOR INHIBITING FUNGAL GROWTH
ON STRAWBERRY (*Fragaria x ananassa* Duch.) FRUITS**

ZAKI RUHYAMAN
15/385542/TP/11411

ABSTRACT

Chlorine as disinfectant in the food industry has been identified as a concern due to public health issues. Slightly acidic electrolyzed water (SAEW, pH 5.0 – 6.5), with available chlorine concentration (ACC) which gives the antimicrobial activity, have been considered as novel disinfectant in the food industry. With slightly acidic pH value, the effective form of chlorine compound in SAEW is mainly hypochlorous acid (HOCl, 95%) which has an inactivation efficacy that is 80 times greater than hypochlorite ions. Antimicrobial activity of SAEW was dependent on the surface of fruit treated. Strawberry fruits are highly perishable because of fungal infection, especially *Botrytis cinerea* that caused gray mold. SAEW can be used to treat harvested fruit as a mist. The objectives of this study were (1) to evaluate the effectiveness of SAEW to inhibit fungal growth on strawberry fruit and (2) to find mist application method of SAEW and the influencing factor to inhibiting fungal growth in strawberry fruit.

SAEW were produced by electrolysis of NaCl using single-cell chamber. SAEW applied with three mist method namely evaporation mist, dry mist, and humidifier mist. Fungal growth on strawberry fruits during storage days measured and calculated as decay severity index (DSI) and decay severity percentage (DS %). Antimicrobial activity of SAEW was also evaluated by in vitro experiment.

The result of this study indicate that antimicrobial activity of SAEW for inhibiting fungal growth on strawberry fruit influenced by ACC value, HOCl in atmosphere and the occurrence of dew attached to fruit surface. SAEW applied with humidifier mist was effectively inhibiting fungal growth on strawberry fruits. SAEW with 20 ppm was completely terminate fungal spores during in vitro evaluation.

Key words: *Botrytis cinerea*, SAEW, strawberry fruits

Pembimbing : Dr. Jumeri, STP., M.Si., Dr. Agung Putra Pamungkas, STP., M.Agr.,
Dr. Mohammad Affan Fajar Falah, STP., M.Agr.