Change of Microbial and Physicochemical Characteristics in the Raw Materials of Saengsik by Washing with Slightly Acidic Electrolyzed Water (SAEW) during Storage

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Abstract: This study investigated changes of microbial and physicochemical characteristics in the raw materials of Saengsik, brown rice, barley, carrot, potato, kale and Angelica Utilis Makino, by washing with slightly acidic electrolyzed water (SAEW) during storage. To confirm the microbiological effects of treated washing solutions, tap water (TW) as a control, sodium hypochlorite water (NaOCl, 150 mg/L) and SAEW (HOCl, 30 mg/L), and change of chromaticity authors stored raw materials of Sangsik for 5, 10, 15, 20, 25 and 30 days at storage temperature 4, 10, 15, 20, 25 and 30 °C as self-life study. The maximum reduction of 1.45 and 1.51 log CFU/g was achieved by SAEW than NaOCl treatments against total bacteria and coliform respectively, following each different storage temperature and storage period in the raw materials of Saengsik. There was significant different ($P > 0.05$) between the SAEW and NaOCl treatments efficacy. The lightness (L), redness (a), and yellowness (b) values of the raw materials of Saengsik were not definitely affected by SAEW treatments, except b value of kale and Angelica Utilis Makino increased by SAEW treatments than NaOCl treatments. Consequently, comparing treated samples to untreated controls showed that SAEW treatments extended the shelf-life of raw materials of Saengsik at different temperatures with reduce of microorganisms and marginal changes of chromaticity. Data indicate that the SAEW washing is an effective means of maintaining the quality and enhancing the shelf-life of raw materials of saengsik could be effectively used as pasteurization step and maintained ingredients of Saengik without affecting the other properties during storage.

Key words: Saensik, slightly acidic electrolyzed water, sodium hypochlorite water, storage, change.