Development of an Edible Coating Using Crude Sodium Alginate from *Sargassum ilicifolium* Incorporated with Ascorbic Acid for Minimally Processed *Artocarpus Heterophyllus* Lam

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Jackfruit *(Artocarpus heterophyllus)* lam is a highly available and demanded tropical food because its' sensory attributes are similar to meat. Many processes involved in minimally processing of Jackfruit lam. However, the challenge is the browning. Therefore, processors are in need of healthy, cost effective ways to minimize the browning. Hence, this study was conducted to minimize the browning in Jackfruit lam using an edible coating from seaweed hydrocolloid. Seaweed hydrocolloid was extracted from highly abundant, locally available, underutilized brown algae species, *Sargassum ilicifolium* by using sequential biorefinery extraction process. The extracted yield of crude alginate was 31.4% of alga (w/w). Sliced lam was coated using dipping method. Extracted crude alginate, commercial food grade alginate, gelatin with and without ascorbic acid were coated at the room temperature. Citric acid, ascorbic acid treated and uncoated samples were served as the control. Coated samples were stored separately at room temperature (27□C) and refrigeration conditions (4□C) for evaluate the physiochemical (Browning index, Radical Scavenging Activity, Thiobarbituric Acid Reactive Substances, Color and Texture) microbiological and sensory properties. Sensory analysis was conducted by serving boiled lam without adding any ingredients for 30 untrained panelists with 9-point hedonic scale. The UV spectrophotometric readings were indicated that the coating significantly reduce the browning compared to uncoated lam ($p<0.05$). Besides that, crude alginate with ascorbic acid were recorded as highest radical scavenging activity in 2,2-diphenyl-1-picrylhydrazyl assay, overall sensory quality, lowest microbial count in total plate count and extend the shelf life for 3 days at room temperature and 2 days under refrigerated conditions. Hence, ascorbic acid enhances the effectiveness of the coating. Then, Jackfruit lam coated with crude sodium alginate with ascorbic acid reduced the browning.

Keywords: Brown algae, Browning, Hydrocolloid, Bio-refinery extraction, Dipping method