Development of an Edible Packaging Material Using Jack Fruit (*Artocarpus heterophyllus*) Seeds and 'Kohila' (*Lasia spinosa)*

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Currently, increasing worldwide annual plastic production and improper handling of plastic waste leads to higher environmental pollution. Therefore, the present study was focus to develop a packaging material with edible properties. Edible packages are beneficial rather than bioplastics because it does not exist in the environment as waste. Jackfruit (*Artocarpus heterophyllus*) seeds that are underutilized contain about 24% of amylose and Kohila (*Lasia spinosa*) rhizomes are under-utilized marshy herb with anti-oxidant properties, which imparts good health effects. Therefore, this edible package consists of Jackfruit (*Artocarpus heterophyllus*) seed powder, Kohila (*Lasia spinosa*) rhizomes powder, Tylo powder, Salt, Sorbitol, Cooking Oil and Water. All materials were used according to a finalized recipe, mixed, prepared a thin film, and molded up. Treatments were prepared by varying Kohila Rhizome powder (KRp) at 0%, 2%, 8%, and 12%. Treatment with 0% KRp was served as the control. Based on sensory evaluation, treatment with an 8% KRp added sample was selected. Physiochemical properties, Water Vapor Permeability (WVP), Microbial analysis, DPPH Scavenging Activity, FTIR analysis, and proximate analysis were carried out to the best treatment. The fiber level was higher (7% on a dry basis) in treatment with 8% KRp. WVP was decreased in the 8% KRp treatment ($p < 0.05\%$) during storing conditions at temperature $25 \pm 0.5^{\circ}C$ and humidity $50 \pm 2\%$ RH. FTIR analysis showed that there was no effect on the addition of Kohila bonds within the film and hydroxyl (OH) groups are present which causes solubility in water. There was no effect on Total Plate Count addition of KRp. DPPH Scavenging Activity was high and hardness was low. In conclusion, an edible cup developed with 30 - 35% of Jackfruit seed powder and 8-10% Of KRp has good antioxidant activity and barrier properties and it would be a better alternative for the single-use synthetic cup.

Keywords: *Lasia spinosa*, Antioxidant, Jackfruit seeds, Edible cup, Dietary fiber