**Development of a Smoked Tender Jackfruit (*Artocarpus heterophyllus*)** **Product that Resembles Meat-based Barbeque, as a High-value Vegan Food for the Export Market**

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Jackfruit (*Artocarpus heterophyllus*) is a dicotyledonous plant that belongs to family Moraceae. Jackfruit in Sri Lanka is wasted largely at its different maturity stages due to limitation of consumption. As a solution to minimize this wastage and also as a meat alternative vegan food, a smoked tender jackfruit product was developed using Cinnamon (*Cinnamomum zeylanicum*) as firewood for smoking. The suitable temperature, the amount of wood and suitable smoking duration were tested according to Box-Behnken design in Response Surface Method (RSM). The prepared smoked tender jackfruit samples with salt and pepper were evaluated using nine point hedonic test for sensory properties (colour, appearance, texture, taste, odour and overall acceptability) to determine the most suitable sample and its salt and pepper content. Using 150 g of fire wood for smoking at 80°C temperature about 20 minutes was the most effective treatment combination to prepare 1 kg of smoked product. Proximate composition of the product was 79.05 % moisture, 1.02 % crude fat, 3.08 % protein, 7.19 % crude fiber, 2.04 % ash and 8.02 % carbohydrates. The microbial content of the vacuum packed final product was estimated as Total Plate Count (TPC) and yeast and mould count. The microbial content in smoked sample stored under refrigerator condition (4°C) was comparatively lower than non-smoked sample during a three weeks period. Initial pH value was 3.84 and the brix value was 6°Bx in the smoked product. The colour development of the product was presented as increment of darkness of the outer appearance. The ideal L\*a\*b\* colour values were L\* 42.74, a\* 5.55, b\* 11.42 in the developed product. The texture became softer, with increased temperature and smoking duration. Presence of Polycyclic Aromatic Hydrocarbons (PAH4 marker) were tested using High Performance Liquid Chromatography (HPLC) method and they were not detected in the smoked product. The physical properties, chemical properties and microbial count of the finished product even after one month of shelf life, show promise to introduce it as a vegan food to the export market.

**Keywords:** *Response Surface Method (RSM), tender jackfruit, Polycyclic Aromatic Hydrocarbons, food smoking, cinnamon firewood*