

DEVELOPMENT OF A READY TO-EAT RICE PACK

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High demand for convenient foods drives the growth in the Sri Lankan packaging industry as a result of urbanization, changing lifestyles and widespread availability of microwaveable foods. Retort processing has been at the core of food preservation and processing for many years. The use of retortable pouches is an advanced technology compared to conventional canning process. Developing a convenient, cooked rice product in a retortable pouch with effective parameters can enhance the local food industry. This was performed by using four ply pouch material with a composition of Poly Ethylene Terephthalate (PET) (12 µm), Nylon (15 µm), Aluminium foil (6 µm) and Cast Poly Propylene (CPP) (60 µm). White basmati rice (350 g) produced by the CIC Agri Business Pvt. Ltd was prepared either by boiling or steaming. Both samples were fried for eight minutes with sunflower oil (30 g) and garlic paste (35 g). Fried rice (200 g) was filled into 150 mm x 195 mm size opaque preformed pouches and heat-sterilized using a laboratory scale autoclave. Microbial contamination (aerobic plate count, yeast and mold count), organoleptic qualities (colour, flavour, aroma, texture and overall acceptability using 30 untrained panellists) and physicochemical properties (moisture, pH) were examined to select the most appropriate method of processing. Due to unacceptably higher microbial counts found in all boiled rice samples just after retorting, they were rejected. A F_0 value of 11 to 13 min under a thermal process at 121 °C was necessary to make steam cooked rice a shelf-stable product with no preservatives or additives. Those rice samples were packed in stand-up pouches and stored at ambient temperature for five weeks to monitor the changes in organoleptic and microbial counts. Steam cooked rice processed to a F_0 value of 11 min showed higher sensory scores for organoleptic qualities than steam cooked rice processed to a F_0 value of 13 min, although F_0 value of 13 min showed lower aerobic plate counts than those with a F_0 value of 11 min. Results therefore suggest that the thermal treatment should be optimized between 11-13 minutes to ensure the shelf-stability of the product.

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