

(231)

Analysis of the Availability of Plastic Food Packaging and their Alternatives in the Market

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Abstract

Plastic poses significant environmental and health challenges, interlinked with food safety. In the recent past, plastic food packaging and wrappers got significant attention due to difficulties in waste management and implementation in related health issues. This study aims to analyse the different types of lunch boxes and plastic food-wrapping materials available in the market compared to alternatives. Data for the plastic lunch boxes survey was conducted by randomly selecting 28 stores in the Gampaha district. The data for the food wrappings survey was conducted by selecting two supermarkets in Kelaniya. Gampaha district was selected as the study site due to the highest population, and it has been designated as the commercial region. 104 different types of dry food products were sampled. From the 28 stores, 168 different types of lunch boxes were sampled to examine the brand, price, and availability of ambles such as recyclability and food grade. The brand, packaging material, recyclability, recyclable number, food-grade logo, and price of the selected dry food products were examined. The data was analysed using descriptive analysis, a 1-proportion test, and a one-way ANOVA test. 83% of available lunch boxes were plastic. And 17% of lunch boxes were alternative materials such as stainless steel, glass, and bamboo. Out of 139 types of plastic lunch boxes, 93% were made of number 5, polypropylene. Prices of sampled plastic lunch boxes varied from Rs.160 to Rs.2700. Prices of alternative boxes varied from Rs.500 to Rs.8000. According to the shop managers, stainless steel, glass, bamboo, and other types of lunch boxes were less popular due to high prices and less availability. However, 100% of the different types of plastic boxes carried food-grade and BPA-free logos, certifying food safety. The 1-proportion analysis showed the dominance of plastic lunch boxes ($0.5 <$) in the sampled population. Out of 104 different types of dry food wrappings, 67% of products were wrapped with thin plastic. 33% of dry food products were wrapped with alternative materials such as aluminium, cardboard, and paper. Recyclable number 5 (60%) and recyclable number 7 (40%) were commonly found in dry food packaging. The one-way ANOVA analysis showed that there is a significant difference between the wrapping material of sampled products and their price. The findings recommend prioritising implementing Extended Producer Responsibility (EPR) and pushing producers to introduce their products with eco-friendly packaging innovations to control the food packaging waste.

Keywords: *plastic lunch boxes, dry food wrappings, eco-friendly alternatives, market availability, recyclable number*