

**IDENTIFICATION OF DIFFERENT TYPES OF  
MATERIALS USED IN PACKAGING TEA FOR  
RETAILING IN SRI LANKA AND ESTIMATION OF  
WASTE GENERATION DUE TO TEA PACKAGING**

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## ABSTRACT

Packaging is an important component of the food technology, assuring the safe and delivery of fresh and processed products from the point of production to the end user. On a global scale food packaging ensures food security and safety and tends to increase food trade. Tea industry has become vital component in Sri Lanka economy and become major exporting commodity. The success and profitability food manufacturer is closely associated with the packaging system. This study was undertaken to identify different types of packaging materials used in retail packaging of tea in Sri Lanka, to assess their suitability and to quantify waste generation from different forms of packaging. Tea packed during nearby months in different materials and in different forms by major tea packers and retail packers were collected from supermarkets and retail sellers in Badulla town. Packing materials were identified using FTIR technique and thicknesses of materials were measured using a caliper. Weights of empty packet and its content were measured separately and waste generations due to packaging (g of package/kg of tea) were calculated. Three unopened samples from each types of package were stored under room temperature. Moisture contents of these samples were analyzed opening one sample from each type monthly. Low density polyethylene (LDPE) was the most commonly used material for retail packing of tea. LDPE with various thicknesses (0.04 - 0.14 mm) and in different forms (plain, laminated & metalized) were found to be used. Moisture content of tea packed in plain LDPE exceeded the permissible level (8%). Estimated waste generation (g/kg of tea) from 50 g packs ( $62.4 \pm 17.3$ ) was significantly ( $P < 0.05$ ) higher than that of other packs; 100 g ( $35.8 \pm 6.5$ ), 200 g ( $25.3 \pm 12.6$ ), 250 g ( $24.7 \pm 10.5$ ) and 400 g ( $24.8 \pm 5.1$ ). It can be concluded that plain LDPE will not protect tea adequately from moisture gaining during storage and higher amount of waste is generated from 50 g tea packs.

*Keywords:* Packaging, Moisture Gain, Waste Generation