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The changes of proximate composition, cyanide content, and shelf life of minimally processed cassava (*Manihot esculenta*) under the low temperature storages

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Cassava (*Manihot esculenta*), which belongs to the family *Euphorbiaceae* is one of the energy-rich foods grown in tropical regions. Sri Lanka has a surplus cassava production throughout the year. Cassava plays a vital role as an exporting commodity. Exporters use low temperatures while exporting cassava and nowadays there is a new trend of using minimally processed-blached foods. However, there are no studies to explain the changes in the nutrient content of local cassava cultivars at low temperatures. Hence, this study investigated the changes of proximate composition, cyanide content, and shelf life of minimally processed-blached cassava at low temperatures. The most popular exported local cassava cultivars, namely “MU 51” and “*Suranimala*” were selected for this study and subjected to the normally exported method and minimally processed-blached method. All samples were stored at refrigerated (13 °C, 80% RH) and freezing (–4 °C, 80% RH) conditions for a maximum six-week period. Proximate composition (AOAC, 2000), cyanide content, and keeping quality (cooking time, weight loss percentage, microbial analysis) of the samples were determined at one-week intervals. Results explained that the moisture content of blached samples of both cultivars significantly ($p \leq 0.05$) differed with stored temperature and it was reduced by 0.8% in MU 51, and 7.8% in *Suranimala* at freezing conditions. Meanwhile, fat, protein, fiber, ash, and carbohydrate content of blached samples significantly ($p \leq 0.05$) differed with stored temperature during the storage time. The weight loss percentage was decreased by 0.41% in blached MU 51, and 0.24% in blached *Suranimala* samples at freezing conditions. The blached-frozen sample of *Suranimala* showed the lowest cyanide content (0.95 mg/kg), the lowest cooking time (570 s) and no detectable microbial count at the end of the storage time because blanching drastically reduces the cyanide content and initial microbial load. Furthermore, blanching and freezing soften the tissues of cassava pieces. This study revealed that freezing conditions and blanching retain the keeping quality of cassava while reducing the cyanide content.

Keywords: Export cassava, minimally process, blanching, MU 51, “*Suranimala*”

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