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Application of Cleaner production for selected leeks and papaya value chains in Sri Lanka

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Agriculture plays vital role for the national economy while contributing 7.9% to the GDP while the fruit and vegetable sub sector of agriculture has contributed between 0.6-0.8% to the total GDP of Sri Lanka. Postharvest losses of the fruits and vegetables through the value chains impacts on food security and energy security of the country. It is estimated that in Sri Lanka, 30-40% of fruits and vegetables are wasted through the value chain. However, literature data is lacking on postharvest losses of each fruitor vegetable. Cleaner production (CP) is a continuous application of an environmental strategy to increase the productivity of processes, products, and services by ensuring less harm to the environment. In this study, CP methodology was used to assess the postharvest losses of leeks and papaya, and to identify the cleaner production potential. During this study, the material flow of leeks and papaya from Nuwara Eliya to Pannala and Puttalam to Pannala, via the Dambulla Economic Centre (DEC) was studied, in order to identify the postharvest losses and to identify the causes for the losses, and cleaner production potential to reduce or utilize the losses. At each node of the value chains, losses were calculated through analyzing the daily and monthly resource flow. Then the CP potential was calculated based on the cost of waste. It was found that 15% of leeks and 20% of papaya were lost in the value chain and the postharvest losses are high at the retail level. Further, results indicate that CP potential at the retail level of leeks and papaya were 4.3 Million LKR/year and 0.18 Million LKR/year respectively. The identified root causes for the losses were mechanical damage, poor handling, poor package, lack of demand, and climatic change. The CP solutions obtained through the study to reduce postharvest losses of leeks and papaya are providing of technological education for farmers on planting, harvesting, handling, and transportation, and the distribution of quality seeds. The usage of plastic crates and cold storage facilities could reduce much loss. Instead of discarding, wastage could be used to produce fuel, biogas, synthesized proteins, and copolymer substances.

Key words: Cleaner production, Postharvest losses, Fruits and vegetable value chain

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