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Bacterial contamination of three commonly consumed raw vegetables from the manning market and six selected supermarkets in the Colombo municipality area, Sri Lanka – A preliminary study

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Leafy vegetables have popular among people around the globe as these vegetables could be consumed with minimal processing. However, they play a major role in transmitting food-borne diseases. This descriptive cross-sectional study was designed to assess the bacterial contamination of commonly consumed vegetables; *Lactuca sativa* (lettuce), *Centella asiatica* (gotukola) and *Brassica oleracea var capitata* (cabbage). Vegetable samples were collected from the Manning market and two randomly selected outlets of three selected supermarket chains; A, B & C located in Colombo 03, Colombo 05 and Colombo 06 respectively in Colombo municipality area, each week for a period of two months. Spread plate method was used for the calculation of viable colony counts and API 20E Enterobacteriaceae identification test aided with gram staining and oxidase test for bacteria identification. Mean colony counts were considerably high in all purchased vegetables from "A", "B" and "C" supermarkets and the Manning market. From the selected three vegetables, highest colony counts were observed from cabbage. Further, all three vegetables showed the highest contamination in supermarket chain "A" while no potentially hazardous organisms were found from supermarket chain "C". More than 80% of the isolated colonies were gram-negative organisms and from these 51.1% were gram-negative bacilli. Furthermore, several bacterial species belonging to families Enterobacteriaceae: *Pantoea* spp., *Enterobacter cloacae*, *Enterobacter aerogenes* and *Klebsiella* spp. Family Pseudomonadaceae: *Pseodomonas putida;* from Vibrionaceae*: Vibrio fluvialis*and from family Xanthomonadaceae*: Stenotrophomonas maltophilia* were isolated. Presence of Enterobacteriaceae was confirmed; signifying the possible presence of bacterial pathogens in vegetables which could pose a potential health hazard to the consumer.

Keywords: raw leafy greens, minimally-processed vegetables, bacterial contamination and coliforms

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