120% for all the spiking concentration levels, 8 ppb, 40 ppb and 80 ppb. The precision of the method was assured by relative standard deviation values (RSD) obtained below 20% for all the pesticides. The limit of detection (LOD) and the limit of quantification (LOQ) of the method were 0.001 and 0.005 mg/kg respectively, and the method was found to be robust over different matrices. Hence, the method can be regarded as accurate and reproducible for the analysis of pesticide residues in a wide range of fruit and vegetables.

Key words:
LC-MS/MS, Modified QuEChERS, Method validation, Fruit and Vegetables

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Quantitative analysis of curcumin content of turmeric (*Curcuma longa* L.) grown in four locations of Sri Lanka by HPLC analysis

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The objective of this study is quantification of curcumin content in turmeric from four distinct locations in Sri Lanka. *Curcuma longa* L. belongs to the Zingiberaceae family. Curcumin, a bright orange-yellow color pigment of turmeric consists of a mixture of three curcuminoids namely- curcumin, demethoxycurcumin, and bisdemethoxycurcumin.. Curcumin was isolated and purified through preparative TLC followed by HPLC analysis to determine the purity of curcumin. Purified curcumin was used as a standard for HPLC analysis. Also purified standard was compared with curcumin analytical standard (Fluka /Assay 97%) and confirmed as curcumin. The Soxhlet extraction of each sample was investigated using an HPLC method. HPLC analysis was performed on a C18 column using 2% glacial acetic acid (GAA), and 100% acetonitrile with UV Spectroscopy detection at 425 nm. Further, moisture content and oil content were analyzed for each sample. The average moisture content and oil content of the dried turmeric samples were recorded as 30.5 and 34.2 respectively. The curcumin content of the four authentic samples was 1.49 ± 0.25^{d}, 4.25 ± 0.23^{a}, 2.26 ± 0.21^{c} and 2.96 ± 0.22^{b}. There was a significant difference between location and curcumin content at alpha 0.0001. The highest curcumin content was reported in Ingiriya are making 4.25 ± 0.23^{a}. According to the study, the curcumin content of turmeric samples collected from Kalutara, Ingiriya, Kuliyapitiya, and Meepe has changed significantly with their geographical locations. Likewise, further studies can be carried out for commercial samples of turmeric as well. Curcumin extracted from turmeric can be utilized to manufacture gel capsules and other nutraceuticals as value-added products.

Keywords:
Curcumin, Curcuminoids, Preparative Thin Layer Chromatography, Glacial acetic acid (GAA).