

Bulk and trace element analysis of spices: the applicability of k_0 -standardization and energy dispersive X-ray fluorescence

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Abstract

Methodology has been developed for the bulk and trace element analysis of spices such as curry powder and turmeric powder originated from Sri Lanka by the k_0 -standardization method (INAA- k_0) and by energy dispersive X-ray fluorescence (EDXRF). SRM 1572 citrus leaves was used to check the accuracy of the results obtained by the two nuclear techniques. The elements determined quantitatively in these matrices by the EDXRF analysis were bromine, calcium, copper, iron, potassium, magnesium, manganese, phosphorus, rubidium, sulphur, strontium and zinc. The results obtained by the two techniques are comparable, although a few inconsistencies were detected, requiring adequate attention for their correction, whenever possible, in future studies.

Key words

- bulk and trace elements;
- EDXRF;
- INAA- k_0 ;
- spices;
- curry powder;
- turmeric powder