X-RAY FLUORESCENCE ANALYSIS OF MEXICAN VARIETIES OF DRIED CHILI PEPPERS

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Spectrometric methods based on X-ray detection have found uses in many areas, and specifically to study samples of biological origin. However, to date, its application in the food industry has been rather limited. Chili peppers are one of the main components of Mexican diet, with a production of $2 \times 10^6$ ton per year in $1.4 \times 10^5$ hectares of land, and consumption per capita of 15 kg each year [1]. About 20% of the production is consumed as dried peppers. In the present work, X-ray Fluorescence (XRF) is employed to determine the contents of selected elements in several varieties of dried chili peppers which are of widespread consumption in Mexico. Among the studied specimens are ancho, morita, chipotle, guajillo, pasilla, and de árbol (all of them varieties of the species Capsicum annum L.). Samples were obtained from packaged samples. Samples were freeze dried and pelletized. XRF analyses were carried out using a spectrometer based on an Rh X-ray tube [2], using a Si-PIN detector. The system detection calibration and accuracy determination were performed through the analysis of NIST certified reference materials 1547 (peach leaves) and 1570a (spinach leaves). The results are presented in the light of their differences due to variety and brand.