



PL9601116



PL9601117

Flour Characteristics by Means of Pattern Recognition Methods

P. Zagrodzki^{1,2}, M. Schlegel-Zawadzka², P. Malec³, E. Dutkiewicz¹, M. Krośniak² and A. Bichoński⁴

¹H. Niewodniczański Institute of Nuclear Physics, Kraków; ²Department of Food Chemistry and Nutrition, Collegium Medicum, Jagellonian University, Kraków; ³Department of Physiology and Biochemistry of Plants, J. Zursycki Institute of Molecular Biology Jagellonian University, Kraków; ⁴Institute of Cultivation and Acclimatization of Plants, Kraków.

Samples of twenty various brands of flour which originated from the fields of the Plant Experimental Stations in Smolice and Oleśnica Mała were examined for the content of selected toxic elements (Pb, Cd) and some macro- and microelements (Mg, Cu, Fe, Mn, Zn). The chemical composition of flour and its baking characteristics determined through the routine analysis were also included as parameters into the statistical analysis.

Metal levels were measured independently by the atomic absorption spectrometry (AAS), and anodic/cathodic stripping voltammetry (ASV/CSV). The CEM Corporation's Microwave Digestion System MDS-2000 was used for the mineralization of samples prior to the analysis. The atomic absorption analyses of Cd, Cu, Fe, Mn, Pb were performed with the Perkin-Elmer 5100 PC atomic absorption spectrometer equipped with the 5100 ZL Zeeman Furnace Module. In Mg and Zn measurements the flame device of the Perkin-Elmer 5100 PC atomic absorption spectrometer was used. In the ASV/CSV methods (Cd, Cu, Mn, Pb) the UPE-3 electrochemical analyser (Radius Cooperative, Gdańsk, Poland) was used.

Methods of advanced statistics were applied to achieve an exhaustive interpretation of the results. An attempt was made to recognize patterns and isolate clusters on the basis of the selection of relevant variables. The applicability of the assumptions of the linear discriminant technique for this case was tested.

Forest Litter Accumulation of Cesium and Radiocesium in Selected Regions of Poland

P. Zagrodzki^{1,2}, J.W. Mielowski¹, M. Krośniak² and B. Petelenz¹

¹H. Niewodniczański Institute of Nuclear Physics, Kraków; ²Department of Food Chemistry and Nutrition, Collegium Medicum Jagellonian University, Kraków.

The study was a continuation of investigations into the forest ecosystems samples collected in 1991 from woods all over Poland. In 20 samples (out of 345) of the two upper layers of the forest litter, which revealed the highest radioactivities (Cs-137, Cs-134), the stable cesium was assayed by the AAS preceded by microwave digestion. The samples originated from Upper Silesia and from North Eastern Poland.

An attempt was made to find any significant correlation between the contents of stable and radioactive cesium in the litter samples. The results were compared with those obtained for mushrooms from the same sites. The influence of the stable cesium content on the radiocesium transfer factor Tf (from litter to mushroom) was studied and no simple correlation was found. More complex relations provided very high correlation coefficients but the validity of the proposed models needs further checking.