Neutron Activation Analysis

INORGANIC CHEMICAL COMPOSITION OF BRAZILIAN TOBACCO PRODUCTS

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Cultivation and consumption of tobacco in Brazil began before Portuguese colonization and in the current scenario Brazil stands out as the second largest producer of the plant. This crop has great agricultural importance for three states in the southern region of the country; Paraná, Santa Catarina and Rio Grande do Sul, responsible for 95% of all production. The chemical composition of the tobacco products varies according to plant variety, region of cultivation and preparation of the products (washes, additives, flavorings, among others). Tobacco products are the second most commonly used drug among Brazilian students. Many papers in the international literature present studies on the chemical and radiological composition of several tobacco products, but few studies are found regarding the same composition of the derivatives produced in Brazil. Various toxic elements such as Al, As, Cd, Co, Cr, Hg, Ni and Pb can be found in the tobacco products. The aim of the present study was to determine the inorganic chemical composition of the main tobacco products consumed in Brazil, using the techniques of Instrumental Neutron Activation Analysis - INAA technique to determine the elements: As, Ba, Br, Ca, Ce, Co, Cr, Cs, Fe, Hf, La, Na, Rb, Sc, Sm, Th and Zn and the X-Ray Fluorescence technique for determining the elements: Al, Cd, Cl, Cu, Hg, I, K, Mg, Mn, Ni, P, Pb, S, Sb, Se, Sr and U in 82 samples of tobacco derivatives: 20 unflavoured cigarettes, 9 flavored cigarettes, 14 straw cigarettes, 6 cigars and 33 rope fumes.

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