

## RADIOLOGICAL CHARACTERIZATION OF THE VARIETIES BURLEY AND VIRGINIA OF *Nicotiana tabacum* L. CULTIVATED IN BRAZIL

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Brazil is the largest exporter and second largest producer of tobacco worldwide, according to the production of the crop year 2009/2010. The tobacco plant (*Nicotiana tabacum* L.) is used to manufacture all derivatives and the chemical composition of the resulting tobacco varies with the type of tobacco leaves, how they are grown, the region where they are cultivated, the characteristics of preparation (compression, filter and paper) and the temperature variations resulting from the incomplete combustion of tobacco. Tobacco products are extensively used throughout the world and the most consumed are cigarettes, cigars and narghile. The damaging effects that these products cause to human health are discussed worldwide, and many researches are performed with the aim of relating the use of these products with various illnesses. There is a lack of information about the radiological characterization of the tobacco plant both in international and Brazilian literature. This paper presents the preliminary results of <sup>238</sup>U, <sup>234</sup>U, <sup>230</sup>Th, <sup>232</sup>Th, <sup>226</sup>Ra, <sup>228</sup>Ra, <sup>210</sup>Pb and <sup>210</sup>Po concentration in the varieties Burley and Virginia of *Nicotiana tabacum* L., which are the most cultivated in Brazil. Plants from these varieties were cultivated in pots with organic substrate and fertilizer and also acquired from the producers and analyzed by alpha spectrometry for U and Th isotopes and <sup>210</sup>Po determination, and gross alpha and beta counting, <sup>228</sup>Ra, <sup>226</sup>Ra and <sup>210</sup>Pb determination. The whole plant, from both places, was analyzed; root, stem, leaves, as well as the organic substrate, the fertilizers and the soil. The results obtained presented higher values for <sup>210</sup>Pb in leaves when compared with the other parts of the plant, probably due to its atmospheric deposition; these results obtained for <sup>210</sup>Pb were also compared with results from the international literature, and they showed that the Brazilian tobacco has higher values, but they are in agreement with a previous work that analyzed <sup>210</sup>Pb in Brazilian cigarette. The preliminary results obtained in this paper can contribute with a better knowledge and understanding of these radionuclides behavior found in *Nicotiana tabacum* L., cultivated in Brazil, since Brazil is the largest exporter of tobacco in the world.