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**Food Technology,  
Quality and Safety**

**CELEBRATING  
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**ABSTRACT BOOK**

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## DETERMINATION OF URANIUM AND THORIUM IN FEED BY METHOD OF INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY

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Radioactive elements like <sup>232</sup>Th, <sup>235</sup>U and <sup>238</sup>U along with their decay products (e.g. <sup>226</sup>Ra) are present in most environmental matrices and can be transferred to living bodies by different pathways which can lead to the sources of exposure to man. For these reasons, it has been necessary to monitor those natural radionuclides in feed samples to assess the possible hazards.

The amount of homogenized sample was weighed and decomposed using the wet digestion method at the system Ethos, Microwave Labstation, Milestone. Thorium and Uranium content was determined using Agilent 7700x Series ICP-MS (inductively coupled plasma mass spectrometry) and data analysis was performed by MassHunter Workstation software. The abundance of <sup>235</sup>U/<sup>238</sup>U is 0.72%/99.28%.

The study included a total of 19 samples (feedstuffs, mineral and vitamin premixes, and complete mixtures). The results show that the highest levels of tested natural radionuclides measured in phosphate mineral nutrients and ranged in the interval, for thorium, Th = 3.679 - 247.6 mg/kg, and uranium, U = 16.68 - 477.8 mg/kg.

**Keywords:** thorium, uranium, feed, ICP-MS