

P50 USE OF INAA TECHNIQUE IN MINERAL WATER SAMPLES FROM THE PARQUE DAS ÁGUAS OF CAMBUQUIRA AND MARIMBEIRO

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Water is an indispensable molecule for the existence of life, thus several studies analyze both their chemical composition and biological and radiological. There is a greater concern about mineral waters, since they tend to be consumed even as a therapeutic form, originating the study of crenotherapy. Currently there are several analytical techniques for the determination of elements in water and one that can be used is the neutron activation analysis, which consists of a technique that forms radioactive isotopes by means of reactions that occur in the nucleus of the atoms, thus allowing simultaneous determination of various chemical element concentrations. In addition to being a sensitive and reliable method, it is free of sample destruction. The method can be used either in samples in their solid or liquid form. The mineral water, according to Decree Law No. 7.841 of 08.08.1945 is defined as: "Mineral waters are those from natural or artificially collected sources that have chemical composition or physical or physico-chemical properties distinct from common waters with characteristics that give them a medication action". In addition to chemical composition, these waters may be classified by other physical chemical characteristics, such as temperature and gases; they are also studied in the field of medicine. The objective of this study was to determine the concentration of the elements As, Ba, Br, Ca, Ce, Co, Cr, Cs, Eu, Fe, Hf, K, La, Lu, Na, Nd, Rb, Sb, Sc, Se, Sm, Ta, Tb, Th, U, Yb and Zn in the mineral waters from Parque das Águas of Cambuquira, springs Gasosa I, II and III, Férrea, Magnesiana, Litinada and Marimbeiro springs 1, 2 and 3, both parks located in the city of Cambuquira, MG. Parque das Águas of Marimbeiro is located 3km from the center of the city of Cambuquira; the parks are managed by the CODEMIG. A sample of a mineral water spring was also collected from a private property open to the population, near to the park of Cambuquira and called the spring of Laranjal or Dico. The samples for the autumn sampling of 2016 were analyzed, for which the results obtained showed that in the mineral waters of the parks Cambuquira and Marimbeiro was determined the elements Na and Ca, which are expected elements since an important characteristic of fresh waters is that they have an identity of the inorganic ions. This characteristic may be linked to the salts of these ions being moderately soluble, thus facilitating their mobilization in aqueous medium. Also determined in the waters were the elements Zn, Co, Fe and rare earth elements such as Sm and La.
