

DETERMINATION OF CAFFEINE IN COFFEE BEANS IRRADIATED BY HPLC

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Arabica coffee is the main type produced in the countries of Central and South America, with Brazil leading the world in its production. Currently Arabica coffee accounts for about 70% of world production. Its production is an important source of income for more than 70 countries. The coffee bean has in its composition carbohydrates, proteins, lipids and minerals, like the other products of plant origin. The components that effectively characterize are mostly caffeine, chlorogenic acids and trigonelline. Irradiation such as decontamination technique can be applied to the coffee. The Arabica coffee was acquired in a retail market of Rio de Janeiro. This study aims to assess possible changes in caffeine content caused by gamma irradiation. The samples were irradiated in a research irradiator with cesium-137 source, at doses of 1.0, 3.0 and 5.0 kGy with dose rate 1.8 kGy / h. Caffeine analysis was made using the system of high performance liquid chromatography (HPLC) with a C18 column and PDA detector. For extraction of the samples of caffeine and as the mobile phase HPLC analysis was prepared in a solution containing acetonitrile / water / acetic acid 10 / 89.55 / 0.45 (v / v / v), obtained by adding 10% volume of acetonitrile to 90% pure solution of water with 0.5% acetic acid. The chromatographic analysis was performed under the following conditions: flow of 2 ml / min, wavelength PDA detector set to 280 nm; injection volume equal to 5 µl and total run time of 11 minutes. Irradiation of the coffee beans up 5.0 kGy did not significantly alter the caffeine levels of the samples, despite being a group of xanthine alkaloid, containing nitrogen and oxygen atoms.

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