RP-HPLC determination of β-carotene from three maize hybrids

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The paper presents a method for determination of β-carotene concentration from three maize hybrids (NSSK 444, NSSK 640 and Lovrin 400) carotenoidic extracts using the reversed phase- high performance liquid chromatography (RP-HPLC). The analysed hybrids were cultivated at the Didactic Station of the Agricultural Science and Veterinary Medicine Banat's University, Timisoara. In view of a more complete carotenoidic pigments liberation from the raw material, it was used an improved carotenoids extraction technique. In this purpose, before of the carotenoidic compounds solvents extraction, the maize flour was moisten with distilled water and then treated with ethanol 96 % and let at rest 50 minutes for starch hydrolysis and advanced liberation of the carotenoids from plants cells. Carotenoidic pigments extraction was achieved with an organic solvents mixture of petroleum ether: acetone: ethanol 96% (6:3:1, v:v:v) to colorless. For the RP-HPLC analysis it was used an Agilent 1100 system equiped with a Zorbax SB-C18 column, 250 x 4,6 mm and particles size of 5 µm,UV/VIS detector with variable wavelenght and HPChemStation software. β-Carotene was identified in all the three maize hybrids. All the three analysed maize hybrids (NSSK 444, NSSK 640 and Lovrin 400) presents a very high β –carotene content, compared with the literature data concerning β–carotene content in other maize hybrids. The highest β –carotene content was founded in the NSSK 444 hybrid (670.30 µg/g), and the lowest in the Lovrin 400 hybrid (115.50 µg/g). In the NSSK 640 maize flour was founded a β –carotene content of 444.60 µg/g.