MLI - 4

ISPITIVANJE UTICAJA HLADNE ATMOSFERSKE PLAZME NA PROTEINE GLUTENA IZ BEZGLUTENSKOG BRAŠNA GCE METODOM

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Sažetak: Prema *Codex Alimentariusu* proizvod se deklariše kao bezglutenski, ukoliko je sadržaj glutena <20 mg/kg. Cilj ovog rada je bio da se ispita uticaj hladne atmosferske plazme (CAP) na proteine glutena iz bezglutenskog brašna (sadržaj proteina 3,6 g/100 g). Uzorci su tretirani hladnom atmosferskom plazmom u čvrstom stanju (4 min) i kao ekstrakti (1 min) i upoređivani sa netretiranim uzorcima. Proteini glutena, glijadini su ekstrahovani 70% (v/v) etanolom, a glutenini 50% (v/v) 1-propanolom. Apsorbancija je izmjerena na 220 nm. Nakon elektroforetskog razdvajanja na GCE aparatu (Agilent CE 7100), ukupna količina proteina glijadina i glutenina, količina proteina unutar frakcija, kao i njihova relativna koncentracija je određena. Na osnovu dobijenih rezultata, nakon tretmana sa hladnom atmosferskom plazmom, najveća količina proteina glijadina je izdvojena iz netretiranih uzoraka i iznosi Xav=8,00, a najmanja iz uzoraka koji su tretirani kao ekstrakti i iznosi Xav=5,50. Kod glutenina, najveća količina proteina je izdvojena iz netretiranih uzoraka i iznosi Xav=6,67, a najmanja iz uzoraka koji su tretirani u čvrstom stanju i iznosi Xav=5,67.

Ključne riječi: gluten, bezglutensko brašno, hladna atmosferska plazma (CAP), GCE metoda

EXAMINATION OF THE EFFECT OF COLD ATMOSPHERIC PLASMA ON GLUTEN PROTEINS FROM GLUTEN-FREE FLOUR BY GCE METHOD

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Abstract: According to the *Codex Alimentarius*, a product is declared as gluten-free if it contains gluten <20 mg/kg. The aim of this paper was to examine the effect of cold atmospheric plasma (CAP) on gluten proteins from gluten-free flour (protein content 3.6 g/100 g). The samples were treated with cold atmospheric plasma in solid state (4 min) and as extracts (1 min) and compared with untreated samples. Gluten proteins, gliadin, was extracted with 70% (v/v) ethanol and glutenin with 50% (v/v) 1-propanol. The absorbance was read at 220 nm. After electrophoretic separation on a GCE apparatus (Agilent, CE, 7100), the total amount of gliadin and glutenin proteins, the amount of protein within the fractions and their relative concentration were determined. Based on the obtained results, after treatment with cold atmospheric plasma, the highest amount of gliadin proteins was isolated from untreated samples and amounted to Xav=8.00 and the lowest from samples that were treated as extracts and amounted to Xav=5.50. In the case of glutenin proteins, the highest amount of protein was isolated from untreated samples and amounted to Xav=6.67, and the lowest amount from samples that were treated in solid state and amounted to Xav=5.67.

Keywords: gluten, gluten-free flour, cold atmospheric plasma (CAP), GCE method