

Ispitivanje efekata proteolitičkih enzima voća na simuliranu digestiju proteina

Cilj ovog rada je bio istražiti kako digestivni enzimi koji se prirodno nalaze u voću mogu uticati na gastričnu i duodenalnu digestiju proteina - jedne od glavnih grupa makronutrijenata ljudskog organizma. Enzim kome je aktivnost bila testirana je bio aktinidin, proteolitički enzim koji se može naći u kiviju. Izvor makronutrijenata bio je rastvor pripremljen u laboratoriji, sastavljen od izolovanih mlečnih proteina, maslaca i skrba, u količinskim razmerama proporcionalnim preporučenim dnevnom kalorijskom unosu (50% ugljeni hidrati, 30% lipidi, 30% proteina). Svi uzorci su bili tretirani *in vitro* simulacijom gastrične (sa hlorovodoničnom kiselinom i pepsinom) i duodenalne faze (sa Digestal forte[®]) digestije. Aktivnost aktinidina je praćena kroz promenu koncentracije slobodnih aminokiselina između uzoraka u koje je dodavan ekstrakt kikirikija i kontrolnih uzoraka. Koncentracija amino kiselina bila je određena upotrebom ninhidrinskog testa. Dobijeni rezultati ukazuju da aktinidin poboljšava razgradnju proteina. Zaključak istraživanja je da konzumacija kivija nakon obroka bogatog proteinima može olakšati proces varenja hrane.

Effects of Proteolytic Fruit Enzymes on Protein Digestion *in Vitro*

The aim of this paper was to research how the digestive enzymes that are naturally found in fruit can influence gastric and duodenal protein digestion – one of the main groups of macronutrients in the human organism. Actinidin, a proteolytic enzyme found in kiwi, was the enzyme the activity of which was tested. The macronutrient source was a solution prepared in the lab, consisting of isolated milk proteins, butter, and starch, in a ratio proportional to the recommended daily calorie intake (50% carbohydrates, 30% lipids, 30% protein). All the samples were treated with an *in vitro* simulation of the gastric (with hydrochloric acid and pepsin) and duodenal phase (with Digestal forte[®]) of digestion. The activity of actinidin was traced through the change in the concentration of free amino acids between the sample where a peanut extract was added and the control samples. The amino acid concentration was determined with a ninhydrin test. The obtained results show that actinidin improves the degradation of proteins. The conclusion of this research is that consuming kiwi after a protein rich meal can ease the digestion process.

Sofija Paneva (1997), Skopje (Makedonija),
Bulevar Vidoe Smilčevski Bato 34/28, učenica
2. razreda Nova International High School,
Skopje

MENTOR: Aleksandar Đurić, Clinres
farmacija, Beograd