

POVZETEK

Poliamini s svojimi raznolikimi funkcijami v živih bitjih igrajo pomembno vlogo pri ohranjanju notranjega ravnovesja. Organizmi jih lahko sintetizirajo endogeno in pridobijo eksogeno s prehranjevanjem. Na živa bitja lahko vplivajo pozitivno ali negativno. Med ugodne poliamine uvrščamo spermidin in spermin, med neugodne kadaverin, putrescin pa ima relativno majhen negativen vpliv.

Pomemben vir poliaminov predstavljajo kalčki in mikrozelenjava, ki jih zaradi potrebe po homeostazi v času konstantne intenzivne rasti nujno potrebujejo. Pri gojenju graha, čičerike, fižola mungo, gorčice, pšenične trave, boba, soje in ječmena sva določali vsebnost poliaminov v različnih fazah rasti. Vsebnost poliaminov sva določili s tekočinsko kromatografijo visoke zmogljivosti (HPLC). Po gojenju naštetih, so bili v vseh vzorcih v vseh fazah prisotni putrescin, spermidin in spermin. Še posebej izrazito visoke koncentracije ugodnih poliaminov je imela mikrozelenjava graha.

Da bi preverili možnost povečanja vsebnosti ugodnih poliaminov sva mikrozelenjavo graha in pšenice gojili tudi s kratkotrajnim šokom z NaCl in sorbitolom. Močno so se zvišale koncentracije putrescina, ki je prekurzor spermidina, spermina in kadaverina. Posledično sva opazili tudi višje koncentracije spermidina in spermina. Kadaverin ni bil prisoten v visokih koncentracijah, kar potrjuje ugodno prehransko vrednost kalčkov. Na osnovi rezultatov sva ugotovili, da je gojenje kalčkov in mikrozelenjave enostaven in cenovno dostopen način pridobivanja ugodnih poliaminov.

Ključne besede: poliamini, putrescin, spermidin, spermin, kadaverin, HPLC, kalčki, mikrozelenjava

ABSTRACT

Due to their diverse function, polyamines play a significant role in preserving the internal balance. Organisms can endogenously synthesize them or obtain them exogenously with food. They can have a positive or a negative impact on living beings. Favourable polyamines include spermidine and spermine, cadaverine is considered unfavourable, and putrescine has a relatively small negative impact.

An important source of polyamines pose sprouts and microgreens due to their necessity in periods of constant and intense growth. By growing peas, chickpeas, mung beans, mustard, broad beans, wheatgrass, soy, and barley we determined the polyamine content throughout different stages of growth. Content analysis was conducted with high-performance liquid chromatography (HPLC). After growing the mentioned plants, high contents of putrescine, spermidine, and spermine were found in all stages of growth. Especially high concentrations of favourable polyamines contained pea microgreens.

To test the potential increase in the contents of beneficial polyamines, we decided on growing pea and wheat microgreens using short-term NaCl and sorbitol shock. The concentrations of putrescine substantially rose. Putrescine is spermidine, spermine and cadaverine's precursor. Consequently, we found higher concentrations of favourable polyamines as well. Cadaverine

was not present in high concentrations, which affirms the nutritional benefit of sprouts. Based on our results, we found that growing sprouts and microgreens is an easy and cheap way of attaining beneficial polyamines.

Key words: polyamines, putrescine, spermidine, spermine, cadaverine, HPLC, sprouts, microgreens