

Annotation

Balabak O.A., Liubych V.V.

Characteristic amino acid composition of protein of hazelnuts depending of the variety

Amino acid content of protein in hazelnuts depending on the cultivar as well as fulfillment of biological need for them in human feeding are analyzed. It is established that the amino acid content of protein in hazelnuts varies considerably depending on cultivar, but the part of essential amino acids in the total amount stays relatively stable and makes 21–24 %. The hazelnuts of cv. 'Morozivskiy' are characterized by optimal amino acid content because 100 g of the hazelnuts fulfill 11–41 % of the biological need of an adult person for amino acids.

The content of essential amino acids varied from 207.2 mg/g of protein (cv. 'Stepoviy') to 253.0 mg/g (cv. 'Ukraina-50'). The part of leucine was the most of essential amino acids. Thus, its content for cv. 'Stepoviy' made 52.7 mg/g of protein and increased to 72.7 mg/g of protein for cv. 'Ukraina-50'. The content of valine varied from 36.6 mg/g of protein to 49.0 mg/g as well as phenylalanine content — from 32.2 mg/g to 45.9 mg/g of protein dependently on the hazelnut cultivar. The parts of methionine and tryptophan were the least. Thus, the content of methionine varied from 0.5 mg/g of protein to 4.9 mg/g and tryptophan content — from 0.5 mg/g to 1.1 mg/g of protein.

The content of nonessential amino acids in the hazelnuts varied from 684.4 mg/g to 735.3 mg/g of protein dependently on the cultivar. The part of glutaminic acid was the most in the protein and increased considerably from 245.8 mg/g (cv. 'Davydivskiy') to 289.2 mg/g of protein (cv. 'Dar Pavlenka'). The part of cystine was the least — from 3.6 mg/g to 16.8 mg/g of protein dependently on the cultivar.

It is established experimentally that the content of amino acids in the hazelnuts varied from 15.74 % to 19.77 % dependently on the cultivar. The amino acid content in the hazelnuts was high except cv. 'Stepoviy': the index for the latter made 15.74 %. The part of essential amino acids varied in the nuts of this cultivar was the least — 3.46 %.

The investigations revealed that 100 g of hazelnuts fulfill biological need of an adult person mostly for arginine — by 34–41 %, for glutaminic acid — by 35–42 %, for valine — by 26–41 % and least for methionine — by 1–3 % dependently on the cultivar. 100 g of the hazelnuts of the cv. 'Morozivskiy' fulfilled the need maximally of the cultivars under research — by 11–41 %, cv. 'Lozivskiy Urozhainiy' and cv. 'Davydivskiy' — by 16–36 %, and the hazelnuts of the cv. 'Stepoviy' fulfilled it minimally — by 8–36 % dependently on the amino acid.

Key words: hazelnut, amino acid, biological need.