IJUP14

7º ENCONTRO DE INVESTIGAÇÃO JOVEM DA U.PORTO

U.PORTO

CREDITS

LIVRO DE RESUMOS IJUP'14

7º ENCONTRO
DE INVESTIGAÇÃO
JOVEM DA U.PORTO

Universidade do Porto
Apoio Administrativo ID+i
t. 22 040 81 46
secidi@reit.up.pt

Design
Nelson Luís & Ricardo Gomes

Coordenação
Rui Mendonça

Impressão e acabamentos
Invulgar - artes gráfica

Tiragem
1000 exemplares

Depósito legal
340336/12

ISBN
978-989-746-033-3

NOTA
A Comissão Organizadora não se responsabiliza por erros ortográficos ou pela revisão gramatical dos resumos, sendo o conteúdo técnico-científico e a redação do trabalho da inteira responsabilidade dos respetivos autores.

Dietary supplements for cognitive function improvement: control of amino acid levels

F.B. Pimentel[1], J. Botelho[1], C.G. Costa [1,2], A.S.G. Costa[1], A.F. Vinha[1,3], R.C. Alves[1,4], M.B.P.P. Oliveira[1]

[1] REQUI*M*TE, Dep. Chemical Sciences, Faculty of Pharmacy, University of Porto, Portugal.
[2] REQUI*M*TE, Dep. Chemical Engineering, Fac. of Engineering, University of Porto, Portugal.
[3] Faculty of Health Sciences, University Fernando Pessoa, Portugal.
[4] REQUI*M*TE, School of Engineering, Polytechnic Institute of Porto, Portugal.

Neurodegenerative diseases affect cognitive functions by progressive and irreversible destruction of brain cells. The medical treatment is often complemented with dietary supplementation in order to suppress the lack of nutrients that is common in these situations. Some amino acids are especially important to prevent or delay the progress of such diseases. For example, tryptophan, tyrosine, and phenylalanine are biosynthetic precursors of important neurotransmitters (serotonin, dopamine, and norepinephrine), and glutamate and aspartate are themselves brain neurotransmitters [1]. The aim of this study was to evaluate the amino acids composition of commercial dietary supplements (n=8) for improvement of memory and cognitive function.

Samples were prepared according to Pimentel et al. [2], derivatized with dansyl chloride and analysed by HPLC with fluorescence detection. Arginine, 5-hydroxitryptophan, glutamin, aspartic acid, glutamic acid, phenylalanine, tyrosine, lysine, and methionine were the amino acids considered in this study. Analyses were performed in triplicate.

In general, the results obtained are in accordance with the composition of the dietary supplements analysed. Nevertheless, one sample contained significantly lower amounts of aspartic acid and arginine than those described in the label; other supplement did not describe the amino acid composition. When the amino acids content was higher than that referred by the manufacturer for the individual amino acids, the supplement contained always plant extracts and/or peptides that were additional sources of amino acids.

References:

[1] Fernstrom J. D. (1994), *Dietary amino acids and brain function*. Journal of the American Dietetic Association, 94, 71-77.

[2] Pimentel, F.B., Alves, R.C., Costa, A.S.G., Torres, D., Almeida, M.F. and Oliveira, M.B.P.P. (2014), *Phenylketonuria: Protein content and amino acids profile of dishes for phenylketonuric patients. The relevance of phenylalanine*. Food Chemistry, 149(0), 144-150.

Acknowledgments: R. Alves is grateful to FCT for a post-doctoral research grant (SFRH/BPD/68883/2010). This work has been supported by FCT (PEst-C/EQB/LA0006/2013) and QREN (NORTE-07-0124-FEDER-000069- CIÊNCIA DO ALIMENTO).