



# BOOK OF ABSTRACTS

**TITLE**

Book of Abstracts of the XX EuroFoodChem Congress

**EDITORS**

M. Beatriz P.P. Oliveira, Joana S. Amaral, Manuel A. Coimbra

**EDITION**

Sociedade Portuguesa de Química  
Av. Da República, 45 – 3º Esq  
1050-187 Lisboa – Portugal

**DATE**

June 2019

**ISBN**

ISBN 978-989-8124-26-5



@ Sociedade Portuguesa de Química  
All rights reserved.

The editors state that the content of scientific abstracts is of the responsibility of their respective authors.

## Fatty acids composition of the most common bivalves in Korean diet

**Maja Krstić Ristivojević<sup>1,3</sup>, Vesna Jovanović<sup>1,3,\*</sup>, Petar Ristivojević<sup>1,5</sup>, Tanja Ćirković Veličković<sup>1,2,3,4</sup>**

<sup>1</sup> Department of Environmental Technology, Food Technology and Molecular Biotechnology, Ghent University Global Campus, Incheon, South Korea

<sup>2</sup> Faculty of Bioscience Engineering, Ghent University, Ghent, Belgium

<sup>3</sup> University of Belgrade–Faculty of Chemistry, Centre of Excellence for Molecular Food Sciences, Belgrade, Serbia

<sup>4</sup> Serbian Academy of Sciences and Arts, Belgrade, Serbia

<sup>5</sup> University of Belgrade-Innovation Centre of the Faculty of Chemistry Ltd, Belgrade, Serbia

\* *Vesna.Jovanovic@ghent.ac.kr; vjovanovic@chem.bg.ac.rs*

Consumption of bivalve molluscs, such as oysters, mussels, clams and scallops, makes a significant part of the daily Korean diet. Bivalves provide high quality proteins with all the dietary-essential amino acids, lipids, vitamins, minerals and other bioactive nutrients, which offer a variety of health benefits to the consumer [1]. This food contains less than 5 percent of total fat, so it is considered a low-fat food. Beside the amount of total fat, the proportions of saturated, monounsaturated and polyunsaturated fatty acids (FA) (S, M and P, respectively), as well as ratio of n-3 ( $\omega$ -3) and n-6 ( $\omega$ -6) P in food are very important for the health diet [2].

Fourteen species of bivalves *Anadara broughtonii* (AB), *Ruditapes philippinarum* (Manila clam (RP)), *Tegillarca granosa* (TG), *Pecten yessoensis* (Yesso scallop (YS), *Argopecten* spp. (small scallop (SS)), *Chlamys farreri farreri* (CF), *Cyclina sinensis* (CS), *Leukoma jedoensis* (LJ), *Mytilus californianus* (MCa) *Mytilus galloprovincialis* (MG), *Mareatrix lusoria* (ML), *Mactra quadrangularis* (MQ), *Sinovacula constricta* (SC) and *Crassostrea gigas* (Pacific oyster (PC)) were bought in two fish markets in Incheon, Korea, in order to determine FA composition using GC/EI-MS of fatty acid methyl esters (FAME). The FAME were identified by comparing their retention times with those of the FAME standards or by comparing their mass spectra with those stored in the NIST Mass Spectral Library.

In the bivalve samples, 43 different FA were identified, of which 10 were S, 12 M and 13 P, other FA were 7 methyl-FA and 1 hydroxyl-FA. The P/S ratio and  $\omega$ -6/ $\omega$ -3 P ratio are the most significant markers of lipid composition in a healthy diet and both should be close to 1 [3]. Among analysed species, only YS and SS have P/S ratio close to 1 (1.20 and 1.16, respectively), while other species have value between 0.07 and 0.73. The obtained values for  $\omega$ -6/ $\omega$ -3 P ratio were from 0.008 to 0.55, which indicates that bivalve molluscs are the valuable source of  $\omega$ -3 P (EPA and DHA). These  $\omega$ -3 P play important roles in growth, development, and maintenance of health.

**Acknowledgments:** This research was financially supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia, project no. 172024 and the European Commission, under the Horizon 2020, FoodEnTwin project grant agreement no. 810752.

### References:

- [1] V. Venugopal, K. Gopakumar, *Comp. Rev. Food Sci. Food Safety*, 16 (2017) 1219
- [2] U. Gogus, C. Smith, *Intl J Food Sci Technol* 45 (2010) 417  
A. Simopoulos, *Nutrients*, 8 (2016) 128