



# BOOK OF ABSTRACTS

First Legume Society Conference  
*2013: A Legume Odyssey*

9-11 May 2013, Novi Sad, Serbia

First Legume Society Conference  
*2013: A Legume Odyssey*

First Legume Society Conference  
*2013: A Legume Odyssey*

# Book of Abstracts

Editors:  
Aleksandar Mikić  
Diego Rubiales  
Vuk Đorđević

International Legume Society  
Institute of Field and Vegetable Crops, Novi Sad, Serbia  
2013

## Scientific Committee

Michael Abberton (International Institute of Tropical Agriculture, Nigeria)  
Paolo Annicchiarico (CRA, Centro di Ricerca per le Produzioni Foraggere e Lattiero-Casearie,  
Italy)  
Marina Carbonaro (INRAN, Italy)  
Branko Čupina (University of Novi Sad, Faculty of Agriculture, Serbia)  
Vuk Đorđević (Institute of Field and Vegetable Crops, Serbia)  
Gérard Duc (INRA, France)  
Noel Ellis (Aberystwyth University, IBERS, UK)  
Aleksandar Mikić (Institute of Field and Vegetable Crops, Serbia)  
Teresa Millan (University of Córdoba, Spain)  
Fred Muehlbauer (Washington State University, USA)  
Diego Rubiales (CSIC, Institute for Sustainable Agriculture, Spain)  
Marta Santalla (CSIC, Misión Biológica de Galicia, Spain)  
Petr Smýkal (Palacký University at Olomouc, Czech Republic)  
Fred Stoddard (University of Helsinki, Finland)  
Wojciech Święcicki (Institute of Plant Genetics, Poland)  
Cengiz Toker (Akdeniz University, Turkey)  
Carlota Vaz Patto (Universidade Nova de Lisboa, ITQB, Portugal)  
Tom Warkentin (University of Saskatchewan, Canada)

## Local Organising Committee

Svetlana Antanasović (University of Novi Sad, Faculty of Agriculture, Novi Sad)  
Vuk Đorđević (Institute of Field and Vegetable Crops, Novi Sad)  
Rada Jovanović (Institute of Field and Vegetable Crops, Novi Sad)  
Đura Karagić (Institute of Field and Vegetable Crops, Novi Sad)  
Snežana Katanski (Institute of Field and Vegetable Crops, Novi Sad)  
Đorđe Krstić (University of Novi Sad, Faculty of Agriculture, Novi Sad)  
Jelena Marinković (Institute of Field and Vegetable Crops, Novi Sad)  
Ana Marjanović-Jeromela (Institute of Field and Vegetable Crops, Novi Sad)  
Vojislav Mihailović (Institute of Field and Vegetable Crops, Novi Sad)  
Aleksandar Mikić (Institute of Field and Vegetable Crops, Novi Sad)  
Sanja Mikić (Institute of Field and Vegetable Crops, Novi Sad)  
Jegor Miladinović (Institute of Field and Vegetable Crops, Novi Sad)  
Branko Milošević (Institute of Field and Vegetable Crops, Novi Sad)  
Zorica Nikolić (Institute of Field and Vegetable Crops, Novi Sad)  
Mirjana Vasić (Institute of Field and Vegetable Crops, Novi Sad)  
Sanja Vasiljević (Institute of Field and Vegetable Crops, Novi Sad)

Technical Editors:  
Sanja Mikić and Aleksandar Mikić

ISBN 978-86-80417-44-8

Printed by Abraka Dabra, Novi Sad, Serbia, in 300 copies



Under the auspices of

Ministry of Education, Science and Technological Development  
of the Republic of Serbia

Secretariat of the Science and Technological Development  
of the Province of Vojvodina

Secretariat of Agriculture, Forestry and Water Management  
of the Province of Vojvodina

# Programme

9

Session 1

Achievements and challenges in crop legume research

15

Session 2

Legume genetic resources and phylogenetic relationships

47

Session 3

Legumes in foods and impacts on human health

69

Session 4

Advances in legume breeding concepts and tools

115

Session 5

Legume seed production, meeting market requirements and economic impacts

137

Session 6

Translational omics for legume improvement

185

Session 7

Responses to biotic and abiotic stresses in legumes

225

Session 8

Non-food, non-feed and other alternative legume uses

235

Session 9

Understanding and enhancing the legume cropping environment

275

Session 10

Mechanisms of beneficial legume-microbe interactions

289

Session 11

Legumes in animal feeds: requirements and impacts

305

Session 12

Getting the message out: grow, use, feed and eat legumes

### Dehydration affected the expression of miR398 and miR408 in pea (*Pisum sativum* L.)

Živko Jovanović<sup>1</sup>, Nemanja Stanisavljević<sup>1</sup>, Jovanka Miljuš-Đukić<sup>1</sup>, Aleksandar Mikić<sup>2</sup>, Svetlana Radović<sup>3</sup>, Branko Čupina<sup>4</sup>, Vesna Maksimović<sup>1</sup>

<sup>1</sup>University of Belgrade, Institute of Molecular Genetics and Genetic Engineering, Plant Molecular Biology Lab, Belgrade, Serbia

<sup>2</sup>Institute of Field and Vegetable Crops, Novi Sad, Serbia

<sup>3</sup>University of Belgrade, Faculty of Biology, Belgrade, Serbia

<sup>4</sup>University of Novi Sad, Faculty of Agriculture, Novi Sad, Serbia

MicroRNAs (miRNAs), recently recognized as important regulator of gene expression at posttranscriptional level, have been found to be involved in plant stress responses. The observation that some miRNAs are up- or down regulated by stress implies that that could play vital roles in plant resistance to abiotic and biotic stress. We investigated the effect of water stress treatment during 10 days on expression of conserved miRNAs-miR398a/b and miR408 in pea plants. This time frame could reflect the changes as closely as possible those during water stress cause visible effects under field condition. It was observed that dehydration strongly down regulates the expression of both miR398a/b and miR408 in pea roots and shoots. The down-regulation of miR398a/b and the up-regulation of potential target genes copper superoxide dismutase, *CSD1*, highlight the involvement of this miRNA in pea stress response. On the contrary, the mRNA level of cytochrome *c* oxidase subunit 5 (*COX5b*) was not changed in roots and shoots of water-stressed plants, compared to control-well hydrated plants. This suggests that *COX5b* is not target of miR398, or that its expression is regulated by some other mechanism. *P<sub>1B</sub>-ATPase* expression increased during water deficit only in shoots of pea; in the roots there was no changes in expression. Our results might help to understand the possible role of investigated miRNAs and their contribution to pea capacity to cope with water deficit.

#### Acknowledgements

The projects 173005 and TR-31024 of the Ministry of Education, Science and Technological Development of the Republic of Serbia and SEELEGUMES.

CIP – Каталогизација у публикацији  
Библиотека Матице српске, Нови Сад

633.31/.37(048.3)

**INTERNATIONAL Legume Society. Conference (1 ; 2013 ; Novi Sad)**

Book of abstracts / First Legume Society Conference 2013  
A Legume Odyssey ; editors Aleksandar Mikić, Diego Rubiales,  
Vuk Đorđević. - Novi Sad : International Legume Society :  
Institute of Field and Vegetable Crops, 2013 (Novi Sad :  
Abraka dabra). - 328str. ; 29 cm

Tiraž 300. – Registar.

ISBN 978-86-80417-44-8

a) Махунарке – Апстракти  
COBISS.SR-ID 278447623



In the rich world of global agriculture, diverse legumes can play key roles to develop environment-friendly production, supplying humans and animals with the products of high nutritional value.

The Legume Society was initiated in 2011 with two primary missions. One of them was to treasure the rich legume research tradition of the European Association for Grain Legume Research (AEP), with emphasis on carrying out its the triennial legume-devoted conferences. Another one is to fulfill a long-term strategy of linking together the research on all legumes worldwide, from grain and forage legumes pharmaceutical and ornamental ones and from the Old World to the Americas.

We do anticipate that the First Legume Society Conference will be a unique and genuine contribution to our common goals: to promote the legume research and all its benefits into all spheres of the society, linking science with stakeholders and decision-makers, and to demonstrate how an efficient, useful and firm network of the legume researchers of the world is possible and sustainable.

Published by:

International Legume Society

Institute of Field and Vegetable Crops, Novi Sad, Serbia

