



# BOOK OF ABSTRACTS

First Legume Society Conference  
*2013: A Legume Odyssey*

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# Book of Abstracts

Editors:  
Aleksandar Mikić  
Diego Rubiales  
Vuk Đorđević

International Legume Society  
Institute of Field and Vegetable Crops, Novi Sad, Serbia  
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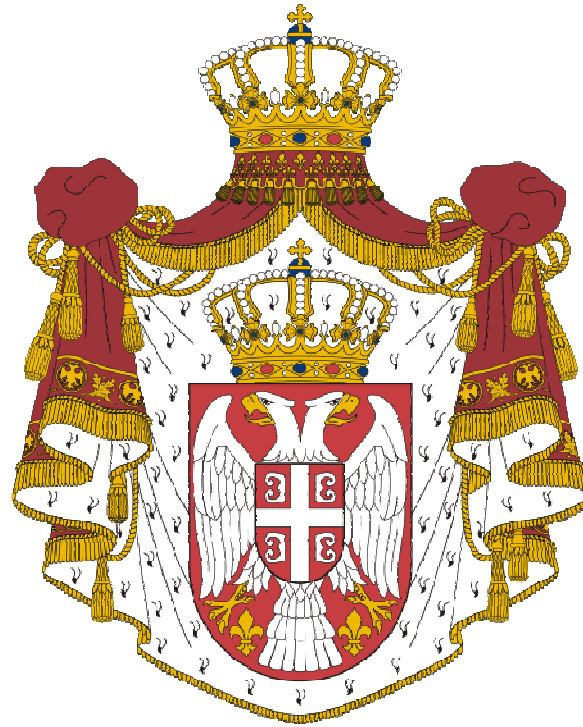
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Sanja Mikić and Aleksandar Mikić

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## Diversity of E genes among soybean maturity groups

Marina Tomičić, Vuk Đorđević, Jegor Miladinović, Vojin Đukić, Aleksandar Mikić

*Institute of Field and Vegetable Crops, Novi Sad, Serbia*

Soybean maturity groups are designated based on geographical areas where particular varieties are adapted. The main environmental factor affecting adaptation is photoperiod. The wide distribution of soybean is caused by diversity of the E genes that interact and control time to flowering and maturity. Dominant alleles delay flowering and their effect under different environments is stable. E2 gene encodes an ortholog of GIGANTEA gene while E3 and E4 control photoperiod insensitivity and encode phytochrome A. E genes are well characterized, but their distribution among germplasm and maturity groups is not quite known. A set of 78 genotypes, originating from North America and Europe was tested on presence of dominant or recessive allele of E2 and E4 genes. All observed maturity groups (from 000 to III) had low frequency of dominant allele of gene E2 ( $p=0.22$ ). Recessive allele of this gene was present in all tested genotypes ( $n=15$ ) in early maturity groups (000 and 00). In 0 and I maturity groups were noticed low frequencies of dominant allele whereas in later maturity groups, II and III, significantly higher frequencies are observed. Clinal variation of E2 gene frequencies among maturity groups was found. Significant differentiation between maturity groups in allele frequencies was indicated by  $g_{ST}$  values (0.439). Furthermore, fixation index ( $F_{ST}=0.76$ ) demonstrated strong differentiation among soybean maturity groups, based on E2 gene. Diversity of E4 gene is very low and analysis of E4 gene distribution showed presence of recessive allele only in three genotypes belonging to the 000 maturity groups. This finding can be useful in breeding of photoperiod insensitive soybeans.

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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.

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