



BOOK OF ABSTRACTS

First Legume Society Conference
2013: A Legume Odyssey

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Book of Abstracts

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

A combined archaeobotanical and palaeogenetic analysis of charred pea (*Pisum sativum*) seeds from an Early Iron Age storage pit at the hill fort settlement Hissar, Leskovac, southeast Serbia

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A unique example of 2,572 carbonized pea seeds was recovered from the 11th century B.C. deposits at Hissar, a multilevel settlement of the Brnjica cultural group (1,350-1,000 B.C.) in southeast Serbia. Five hundred seeds maintained pea-like hilum, only few had preserved intact smooth-surfaced testa and the majority of seeds had no seed coat. Fortunately, only few seeds of other pulses were observed in the sample and their identity was clearly determined. Applying the exclusion principle, all the “naked”, 3-4 mm large seeds, mainly broad ellipsoid and less often globose, with flattenings or concavities, were determined to correspond to cultivated pea (*Pisum sativum* L.). Additionally, a high thousand seed weight of charred seeds (24.4 g) suggested cultivated status. To confirm our finding, we processed two samples with molecular tools. A sequence analysis of four chloroplast DNA loci (*trnSG*, *trnK*, *matK* and *rbcL*) in total length of 1329bp, showed intermediate position to cultivated *P. sativum* and wild *P. sativum* subsp. *elatius*. The level of the detected mutations in the DNA chain proved that genuine ancient DNA, non-contaminated with the modern pea DNA, was analyzed. On the basis of morphological and molecular data, we conclude that the material of the study was not so much wild pea, but rather represents an early domesticated pea. This is the first report of successful ancient DNA extraction and analysis from any legume species so far.

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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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