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September 22-24, 2016 Phoenix, USA

The pea (*Pisum sativum* L) selectivity towards nitrogen-fixing microsymbiont caused by receptorlike kinase gene *LykX*

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S pecificity of the symbiosis between legume plants and nodule bacteria (rhizobia) is based on ligand-receptor interactions, during which the bacterial signal molecules (Nod-factors) are recognized by plant receptor kinases. Within the pea species, several genotypes originating from Middle East are different in their ability to perceive the Nod-factor structure, which results in their increased selectivity for bacterial symbionts. This trait is controlled by plant gene *Sym2* with unknown function. We have identified a new pea gene *LykX* which encodes a receptor-like kinase potentially capable of binding Nod-factor. There are two specific alleles of *LykX* leading to amino acid substitutions in corresponding protein which correlate with the high selectivity in legume-rhizobial symbiosis. Thus, *LykX* is currently considered the most likely candidate for the *Sym2*. For a further description of the role of *LykX* in symbiosis we performed the TILLING analysis on pea mutant collection (in collaboration with Dr. Marion Dalmais, INRA-URGV, France). 8 mutant families with mutations presumably disrupting the function of *LykX* protein (according to the in *silico* prediction; SIFT program) were identified. Plants in each family have shown the decreased number of nodules along with significantly increased number of infection attempts. To decisively confirm the role of *LykX*, we intend to conduct the allelism test between mutant *LykX* alleles and wild *Sym2* varieties.

Biography

Anton Sulima is currently a PhD student in All-Russia Research Institute for Agricultural Microbiology, Russia. His scientific interests lie in the field of initial stages of legume-rhizobial symbiosis and recognition of symbiotic partners. He has been a co-author of several papers published in reputed journals and has participated in a number of international conferences.

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