SPECIFIC EFFECTIVENESS OF SYMBIOSES BETWEEN PISUM SATIVUM AND VICIA FABA AND DIFFERENT GENOTYPES OF RHIZOBIA

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The differentiation of Rhizobium leguminosarum bv. viciae strains on IA- and IB-genotypes of hin-region, probably, connect with specific effectiveness of symbioses with Pisum sat³vum and Vicia faba (so called, CIG - cross inoculation group). It is possible to draw an analogy the only one type of hin-region corresponds to the one species, or even pathovariant of the genus Xantomonas. In case of Vicia faba the inoculation with such strains led to forming effective (IB-genotype) and ineffective (IA-genotype) nodules.
Due to horizontal gene transfer genes, or whole plasmid, the rhizobial acquires the non-specific and ineffective interaction with another, different legume host-plant. This partial interaction is resulting to the sym-genes transferred into the new rhizobial recipient partly.
The estimation of symbiotic potential by sym-genes analysis showed the high level of polymorphism among the strains originated from P. sat³vum nodules, whereas the highly conservative sym-genes pool had been revealed among the Vicia faba isolates. A Rhizobial strains clustering based on nodD/nifD-K-genes correlated with the clustering of these strains achieved by IA- and IB-genotypes of hin-region.
A significant dependency between the number of forming nodules and on inoculation type of plant was detected. In case of plant inoculation provided by both rhizobial genotypes (IA- and IB-) a significant decrease of nodule number was observed, but in case of plant inoculation by only one rhizobial genotype, a number of originated nodules was increased.
Various nodule morphogenesis on the P. sat³vum and V. faba had been observed. The normal baculate form of nodules conformed on P. sat³vum inoculated by IA-genotype strains, or by mix IA+IB genotypes, while the “chimeric”, or mixed form of nodules was formed by inoculation with IB genotype. This atypical underdeveloped form of nodules was also detected for V. faba inoculated by IA-genotype strains.
Hereby the chromosomal background such as hin-region carries the evolutionary history of interaction between symbiotic bacteria and host-plant and displays their most effective pairs.

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