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Press Release

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Federal Research Centre for Cultivated Plants

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Research fellow from Alexander von Humboldt Foundation opted for Julius Kühn Institute (JKI)

JKI host of postdoctoral researcher receiving a Georg Forster Research Fellowship

(Braunschweig, 16.03.2017) Dr. Nemanja Kuzmanovic from the University of Belgrade has received a Georg Forster Research Fellowship for postdoctoral researchers from the Alexander von Humboldt Foundation. This 30-year old phytopathologist stays for two years at the Julius Kühn-Institut in the working group of Prof. Kornelia Smalla, from February 2017.

Dr. Kuzmanovic received his B.S. degree in phytomedicine and Ph.D. degree in plant pathology from the University of Belgrade – Faculty of Agriculture in 2009 and 2014, respectively. His dissertation involved studying the etiology of crown gall disease of grapevine in Serbia, and characterization of the causal agent. After completing his PhD, he continued as research associate at the University of Belgrade. His further research has focused on studying the crown gall disease and its causal agents on various fruit crops. He has made contributions to taxonomy of bacteria causing crown gall and related bacteria occurring in crown gall tumors. During a doctorate exchange at University of Bologna, Department of Agricultural Sciences, supported by JoinEU-SEE II scholarship from Erasmus Mundus, Dr. Kuzmanovic has been involved in a project to develop a new detection method of *Pseudomonas syringae* pv. *actinidiae* in kiwifruit plant tissue and bleeding sap.

The research project proposed within the framework of the Georg Forster Fellowship directly addresses questions related to diversity, ecology and control of bacteria associated with crown gall. Hence, various strains belonging to the genera *Agrobacterium*, *Allorhizobium* and *Rhizobium*, and likely new phylogenetic lineages of family *Rhizobiaceae* will be primary subjects of analysis. Diversity of total bacterial community (microbiome) of crown gall tumors will be explored. Furthermore, it is planned to characterize nonpathogenic strains coexisting in galls as endophytes, and elucidate their ecology and evolution by using whole-genome analysis and comparative genomics. It is known that crown gall-inducing bacteria have to contain tumor-inducing (Ti) plasmids to be virulent. In order to provide insights into the plasmid-mediated adaptation and diversification of bacteria associated with crown gall disease, it is intended to identify, classify and molecularly characterize their plasmids and compare them to the known types.

Recent outbreaks of crown gall disease on various agricultural crops in different countries worldwide suggest the need for stricter phytosanitary control. In order to facilitate phytosanitary diagnostics, it is planned to develop a TaqMan™-based real-time PCR method that enables more specific and sensitive detection of tumorigenic bacteria comparing to methods currently used in testing.

Overall, the proposed research project intends to provide a deeper insight into the biology of the pathogen, contribute to better understanding of crown gall and improve disease management strategy.

About the Georg Forster Research Fellowhip: https://www.humboldt-foundation.de/web/georg-forster-fellowship.html

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