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(22nd SPPS Meeting)

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Serbian Plant Physiology Society

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Faculty of Biology, University of Belgrade

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SELECTED TALKS

Are receptor tyrosine kinases chimeric AGP's?

ST1-1

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Arabinogalactan proteins (AGPs) are cell wall proteoglycans with important roles during plant growth and development. They comprise one of the most complex families of macromolecules found in plants, which is in part due to the incredible diversity of the glycans decorating the protein backbone, as well as the heterogeneity of the protein backbones. While this diversity is certainly responsible for the wide array of physiological functions associated with AGPs, it hampers efforts for homology-based identification. We have developed a new method for filtering AGP sequences that exploits one of their key features, the presence of hydroxyprolines, which represent glycosylation sites. This method was used to filter potential AGPs from *Centaurium erythraea* RNA-seq data. Most of the filtered sequences had no identifiable domains, while the most frequent identified domains were the Protein kinase and Protein tyrosine kinase domains identified in the same sequences, followed by well-known AGP associates, Leucine rich repeats, Probable lipid transfer, Plastocyanin-like and Fasciclin. It is noteworthy that the Protein (tyrosine) kinase domain has thus far eluded experimental evidence for linkage with AGPs in any plant species, probably due to its transmembrane nature. The implicated sequences were examined in depth and compared to homologs from Arabidopsis.

Keywords: arabinogalactan proteins, bioinformatics, hydroxyproline prediction, finding-AGP

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Silicon increases iron use efficiency in cucumber – a strategy 1 model plant

ST1-2

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Silicon (Si) and iron (Fe) are respectively the second and the fourth most abundant minerals in the earth's crust. While the essentiality of Fe has been discovered in the middle of the 19th century, Si is still not fully accepted as an essential element for higher plants. Due to poor Fe availability for higher plants, especially in alkaline and calcareous soils, Fe deficiency represents a major limiting factor for crop production worldwide, affecting both crop yield and quality, with a strong negative impact on human health.