

JOINT EVENT

22<sup>nd</sup> Global Congress on **Biotechnology**5<sup>th</sup> International Conference on &**Enzymology and Protein Chemistry**

February 28-March 02, 2019 | Berlin, Germany

**Effect of vanadium stress on physiological and anthocyanin genes in Brassica genotypes with different photosynthetic activity**Javeria Ejaz<sup>1</sup>, Muhammad Imtiaz<sup>2</sup> and Raina Ijaz<sup>1</sup><sup>1</sup>University of Poonch Rawalakot, Pakistan<sup>2</sup>Guangzhou University, China

Heavy metals are major environmental concern when they present in high concentration in soil. Heavy metals in agricultural land and products are of great attention throughout the world as they are toxic to both plants and human health. The present study aimed to elucidate the photosynthetic performance, antioxidant enzymatic activities, anthocyanin contents, anthocyanin biosynthetic genes expression and vanadium uptake in two mustard genotypes purple and green differing in photosynthetic capacity under vanadium stress. The results indicated that vanadium significantly reduced photosynthetic activity and protein contents in both genotypes. The activities of antioxidant enzymes were increased significantly in response to vanadium stress; however, the purple mustard genotypes had significantly higher antioxidant enzymatic activities. The anthocyanin contents were also significantly reduced under vanadium stress. The anthocyanin biosynthetic genes were highly expressed in the purple genotype, especially the genes TT8, F3H, and MYBL2 under vanadium. The expression of all biosynthesis genes were higher in vanadium-treated purple mustard genotype than green mustard, however with the increase in vanadium concentrations these expression level decreases consecutively. These results indicate that induction of TT8, F3H, and MYBL2 genes was associated with upregulation of biosynthetic genes for higher anthocyanin biosynthesis in purple mustard as compare to green mustard. The vanadium uptake by the roots was always higher than the shoots in the both mustard genotypes. The results showed that the purple had higher vanadium tolerance than the green genotype. Future work should be directed to unveil the mechanistic explanations of genes expression and inter-relationship of vanadium and plants that are currently being unravelled.

**Biography**

Javeria Ejaz is an emerging young scholar, currently doing PhD in Plant Biotechnology at University of Poonch, Faculty of Agriculture, Rawalakot (Azad Kashmir), and focusing on the fate of Biotechnology in Plant Breeding & Molecular Genetics. She has participated in many national and international conferences and seminars, and has given presentation about her research work. She has good scientific publications as well.

javeriarwkt@gmail.com

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