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## Comparative effects of cadmium and lead on plant growth, physio-biochemical aspects, antioxidant activity and molecular screening of protein in an anti-cancerous medicinal herb: *Trigonella foenum graecum* L.

Sana Choudhary, M Y K Ansari, Rumana Aslam, Towseef Mohsin Bhat and Nusrat Jahan Aligarh Muslim University, India

**T***igonella* is receiving global attention due to its rare medicinal properties of significance. Cadmium and Lead are the most toxic on growth and reproduction. Present experiment was designed to investigate their comparative effect on physio-biochemical parameters of *Trigonella* treated with 6 different concentrations (0, 25, 50, 75, 100 and 125 ppm) of both metals in the form of nitrate. The results indicate that there was a direct correlation between increasing concentrations of metals and parameters studied. Germination %, root-shoot length, pigment content, proline content and protein content showed continuous decreasing trend with the increasing metal concentrations and the maximum decline was observed at the higher concentration of cadmium. MDA content was found to be 2-fold higher than control in higher concentration of Cd (125 ppm). On other hand antioxidant activity in *Trigonella* firstly increased and then decreased. The activities of superoxide dismutase and peroxidase increased to more than two fold of the control after exposure of Cd and the peaks were obtained at 75 ppm of Cd whereas catalase activity was slightly stimulated. Thus SOD and POD were more sensitive to Cd than Pb and may be the main enzymes involved in ROS quenching mechanism. Additionally protein profiling by SDS-PAGE was also carried out in present experiment. Present finding reveals that there was 88.88% polymorphism and considerable intra-specific variation was available in the analyzed accessions. The variation in the major bands was present in case of S1 and S5, where as the accessions showed variations for the minor bands. Three new bands i.e., 30, 33 and 34 were present only in case of S5 which might be related to the improvement of studied in *Trigonella* traits.

## **Biography**

Sana Choudhary has obtained her Ph.D. degree in Cell biology and Molecular Genetics from the Department of Botany Aligarh Muslim University Aligarh. At present she is working as a Young scientist under DST-Purse fast track young scientist scheme in the same department.

sana.12amu@gmail.com