Agrotechnol 2014, 2:4
http://dx.doi.org/10.4172/2168-9881.S1.008

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Agricultural & Horticultural Sciences
Radisson Blu Plaza Hotel, Hyderabad, India February 03-05, 2014

Assessment of zinc variability in tomato germplasm lines: An option for biofortification by introgression breeding

G J Pavithra, Mahesh Salimath, Karaba N Nataraja, and Shankar A G
University of Agricultural Sciences, India

Micronutrient malnutrition affects billions of people and continues to impose substantial health, economic and social burdens worldwide. Zinc (Zn) is one of the essential micronutrients crucial for both plants and humans. It is an exceptional micronutrient in respect to its diverse and critical functions in biological systems such as maintenance of structural and functional integrity of biological membranes and as a cofactor for more than 300 enzymes. Zn deficiency is one of the major yield limiting factors. The major limitation for plant to acquire Zn may be due to low content in soil or problem in uptake and translocation within plant system.

In this context, 35 germplasm lines and 6 leading agronomically superior varieties of tomato (*Solanum lycopersicum*) were screened for Zn content in leaf, root, shoot and fruit pulp. The parameters like plant height, shoot dry weight, and fruit yield was recorded in these lines. Earlier studies and germplasm description indicated that variability exist among germplasm lines for fruit size, colour, disease resistance and yield. Perhaps variability in Zn content was not indicated. Zn content analysed in leaf, root, shoot, and fruit pulp were correlated with the recorded parameters and contrast lines for Zn content were identified. The elite germplasm line with high Zn content may be used for the breeding approach or to prospect candidate gene for improving nutritional value. It is a win-win situation where in both crop productivity and human health concern can be addressed.

Biography

G J Pavithra has completed her BSc (Ag) at College of Agriculture Hassan and M.Sc. (Ag) from the University of Agricultural Sciences, GKVK, Bangalore. She achieved first class grade with distinction in M.Sc. (Ag) and secured university gold medal. Presently, she is pursuing Ph.D. in Department of Crop Physiology, University of Agricultural Sciences, GKVK, Bangalore. Her major area of research is to understand the relevance of zinc transporters in uptake and translocation, and biofortification of plant foods through genetic engineering.

pavithra.uas@gmail.com

Direct organogenesis and transformation of AVP1 gene for salt tolerance in Finger millet (*Eleusine coracana* G.)

K M Vasantha, Madhura T N, Prasad T G, Sajeevan R S and Sashidhar V R
University of Agricultural Sciences, India

Salinity in agricultural terms is the excess of salts above the level plant requires. Most often, it poses constrains in the growth hence productivity of the category of plants called glycophytes, wherein falls major crops, therefore is a serious concern, it is often recognized as excess of sodium ions that imparts life threatening consequences in plant due to mal-textured soil hindered porosity and aeration leads to physiological water deficit. Finger millet is an important minor cereal in the Indian subcontinent belonging to the Poaceae (Gramineae) family. Millets are small seeded grasses grown for food, feed or forage and cultivated mostlyin poor soil and dry conditions.

A simple regeneration protocol has been developed for finger millet tissue culture technique. A protocol for direct organogenesis was developed for this particular plant by inoculating the explant shoot tip on MS medium. Shoot tip was found to be the best responsive explants for direct organogenesis. Subsequently, it was found that 75% of explants produced shoots on MS media supplemented with BAP (2mg/L) and NAA (0.1mg/L). The shoots were produced after 5 days of inoculation. Direct organogenesis from the shoot tip gives a pure line which can be utilized in genetic improvement of this crop plant. Finger millet transgenics were developed by overexpressing the Arabidopsis pyrophosphatase gene (AVP1) for enhancing salt tolerance.

The shoot tip propagated plants are the stock for further production of large number of plant whenever necessary. This will cut down the conventional method of growing the crop by sowing and its subsequent growth. These plants grown by tissue culture technology can be preserved as germplasm

vasanthacph@gmail.com