

## **Drought stress and polyamines in maize**

Magda Pál, Gabriella Szalai, Tibor Janda

Agricultural Institute, Centre for Agricultural Research, Hungarian Academy of Sciences, H-2462, Martonvásár, POB 19.

Drought is one of the most common environmental stresses that affect growth, development and in turn yield of crop plants. Thus, understanding of plant responses to drought and investigations on compounds capable of reducing the stress sensitivity of plants are of great importance and crucial to progress in genetic engineering and/or conventional breeding. Polyamines (PAs), which are small, positively charged, aliphatic amines found in all plant cells, are able to bind to negatively charged molecules, e.g. nucleic acids, acidic phospholipids and various types of proteins, thus having a protective role under stress conditions. Results of several studies suggested that PAs can be promising compounds for the reduction of abiotic stress sensitivity in plants, since both seed priming and adding PAs to the hydroponic solution have been shown to protect various plant species against abiotic stress factors. Many reports have indicated that the stress tolerance of plants is correlated with their capacity to enhance the synthesis of PAs upon exposure to stress. In addition, mutant and transgenic *Arabidopsis* plants with altered PAs synthesis pointed to involvement of PAs in different abiotic and biotic stresses responses and have elucidated their key functions in stress signaling networks in plants; however the exact mechanism remains enigmatic. The main questions of the present study are: 1. how influence PA treatment PEG-induced drought stress in maize? 2. is the statement: “the more PAs, the better” true in this case? 3. if not, what are the reasons?

**Acknowledgement** This work was funded by OTKA K108811.