Boldizsár Á., Simon-Sarkadi L., Szirtes K., Soltész A., Szalai G., Keyster M., Ludidi N., Galiba G., **Kocsy G.** (2013): Nitric oxide affects salt-induced changes in free amino acid levels in maize. J. Plant Physiol., 170: 1020-1027.

It was assumed that salt-induced redox changes affect amino acid metabolism in maize (*Zea mays* L.), and this influence may be modified by NO. The applied NaCl treatment reduced the fresh weight of shoots and roots. This decrease was smaller after the combined application of NaCl and an NO-donor ((Z)-1-[N-(2-aminoethyl)-N-(2-ammonioethyl)amino]diazen-1-ium-1,2-diolate, *DETA/NO*) in the shoots, while it was greater after simultaneous treatment with NaCl and nitro-l-arginine (l-NNA, inhibitor of NO synthesis) in the roots. The quantum yield efficiency of photosystem II was not influenced by the treatments. NaCl had a significant effect on the redox environment in the leaves as it was shown by the increase in the amount of glutathione disulphide and in the redox potential of the glutathione/glutathione disulphide redox pair. This influence of NaCl was modified by DETA/NO and l-NNA. Pharmacological modification of NO levels affected salt-induced changes in both the total free amino acid content and in the free amino acid composition. NaCl alone increased the concentration of almost all amino acids which effect was strengthened by DETA/NO in the case of Pro. l-NNA treatment resulted in a significant increase in the Ala, Val, Gly and Tyr contents. The Ile, Lys and Val concentrations rose considerably after the combined application of NaCl and DETA/NO compared to NaCl treatment alone in the recovery phase. NaCl also increased the expression of several genes related to the amino acid and antioxidant metabolism, and this effect was modified by DETA/NO. In conclusion, modification of NO levels affected salt-induced, glutathione-dependent redox changes and simultaneously the free amino acid composition and the level of several free amino acids. The observed much higher Pro content in plants treated with both NaCl and DETA/NO during recovery may contribute to the protective effect of NO against salt stress.