

# VARIOUS STRATEGIES OF NITROGEN ACQUISITION BY PLANTS

## Summary

In this paper we discuss strategies of the uptake of nitrogen by plants. Nitrogen belongs to the group of the most essential nutrients for plants. Uptake of inorganic nitrogen in the form of  $\text{NH}_4^+$  and  $\text{NO}_3^-$  is well-known event, including mechanisms of its uptake and regulation of proper genes. It is also known that symbioses with bacteria or mycorrhizal fungi can potentially improve nitrogen uptake. Additionally, such anatomical adjustments like proteoid roots, root border

cells formation and formation of traps in the case of carnivorous plants can also increase nitrogen influx to plants. It was shown that plant roots can uptake considerable amounts of amino acids, but also short peptides and urea. However, it is still not clear how well plant roots can compete with soil microorganisms for organic nitrogen. Here we also describe exudation of proteases by plant roots, a potentially important strategy in plant nitrogen nutrition.