

SOME ASPECTS OF PLANTS ADAPTATIONS TO PHOSPHORUS DEFICIENCY IN THE SOIL ENVIRONMENT

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Summary

Inorganic phosphates are the only form of phosphorus which plants can take up. Unfortunately, in most soils, including agricultural soils, concentration of phosphate ions in soil solutions is very low. On the other hand, considerable part of soil phosphorus pool is present in the form of phosphoroorganic compounds and a great fraction of phosphates is immobilized by soil particles. For these reasons, plants have developed many adaptations which facilitate more efficient use of the limited soil phosphates sources. These adaptations include changes in the root system architecture to enlarge the sorption area, formation of mycorrhizal associations, increase of activity or abundance of proteins responsible for phosphate ions uptake, as well as secretion of enzymes and organic acids which release phosphate ions from organic and inorganic phosphorous compounds. The goal of this paper is to outline the current state of knowledge about these adaptations.