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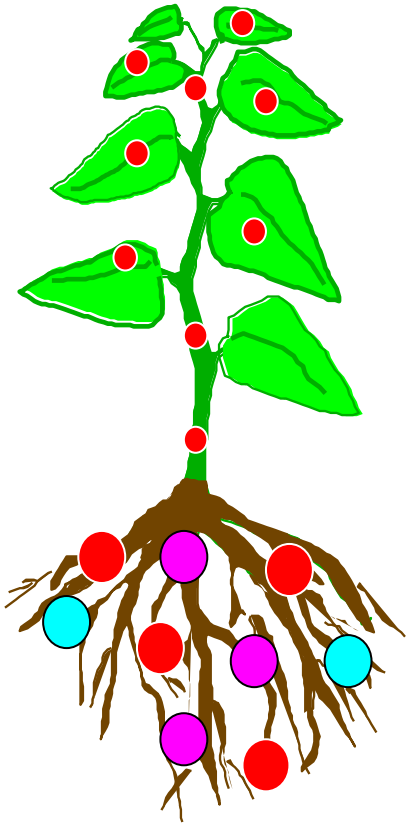
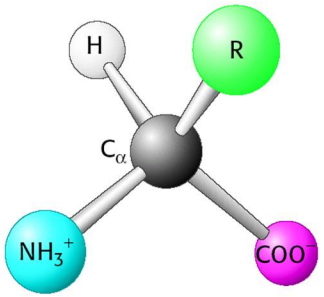
Effects of ammonium application rate on uptake of soil adsorbed amino acids by rice

Key words: Soil-adsorbed glycine; Ammonium; Glycine uptake; Glycine bioavailability; Sterile cultivation

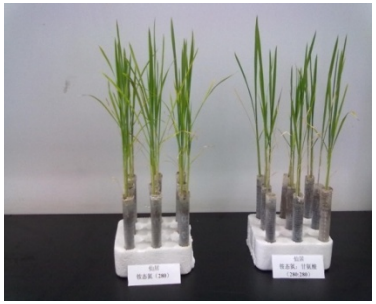
Research Summary

The review mainly 1) examined the sorption capacity of glycine in two different soils, and 2) investigated the effects of high ammonium application rate on rice growth and glycine uptake and nutritional contribution under sterilized environment.



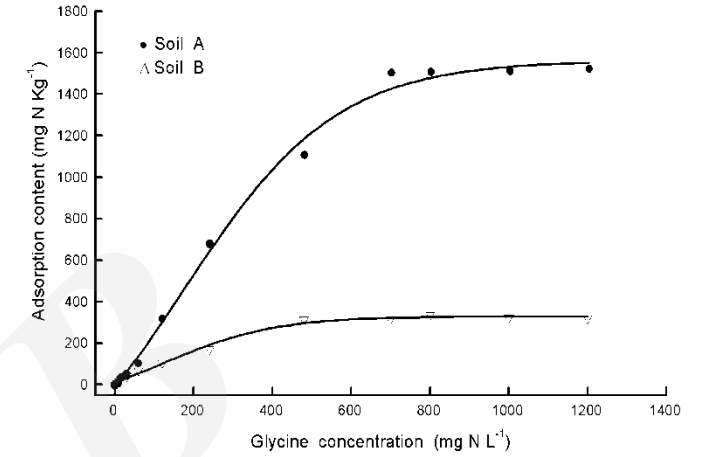


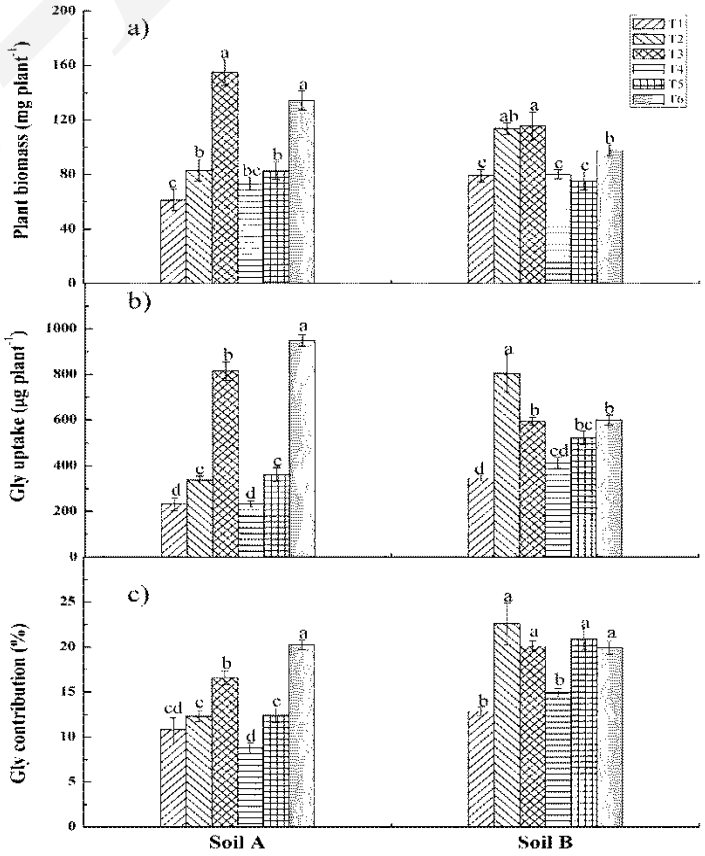




Main conclusions

- Soil A had higher glycine sorption capacity than Soil B.
- High ammonium application rate significantly inhibited rice biomass.
- Rice glycine uptake and glycine nutritional contribution were not related to its sorption capacity, but significantly related to their glycine:NH_4^+ concentration ratio.
- Rice uptake of adsorbed glycine accounted for 8.8%-22.6% of rice total N uptake.





Innovation points

Point 1 | FOCUS on amino acids that adsorbed on soil solid phase.

Point 2 | AVOID the amino acids' mineralization by the exogenous microorganisms under the sterile cultivation.

Point 3 | EVALUATE the effects of high ammonium application rate on rice biomass and glycine uptake in suit with the ^{15}N isotopic tracing method.

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