

BACKGROUND

- It is generally assumed that the heterotrophic **arbuscular mycorrhiza** (AM) ameliorate the supply of **mineral nutrients** for the plant in **exchange for photosynthetically fixed carbon**.
- Bacterivorous **protozoa** release **mineral N** from consumed bacterial biomass ('microbial loop'), which may be translocated by AM-mycelium to plant roots.

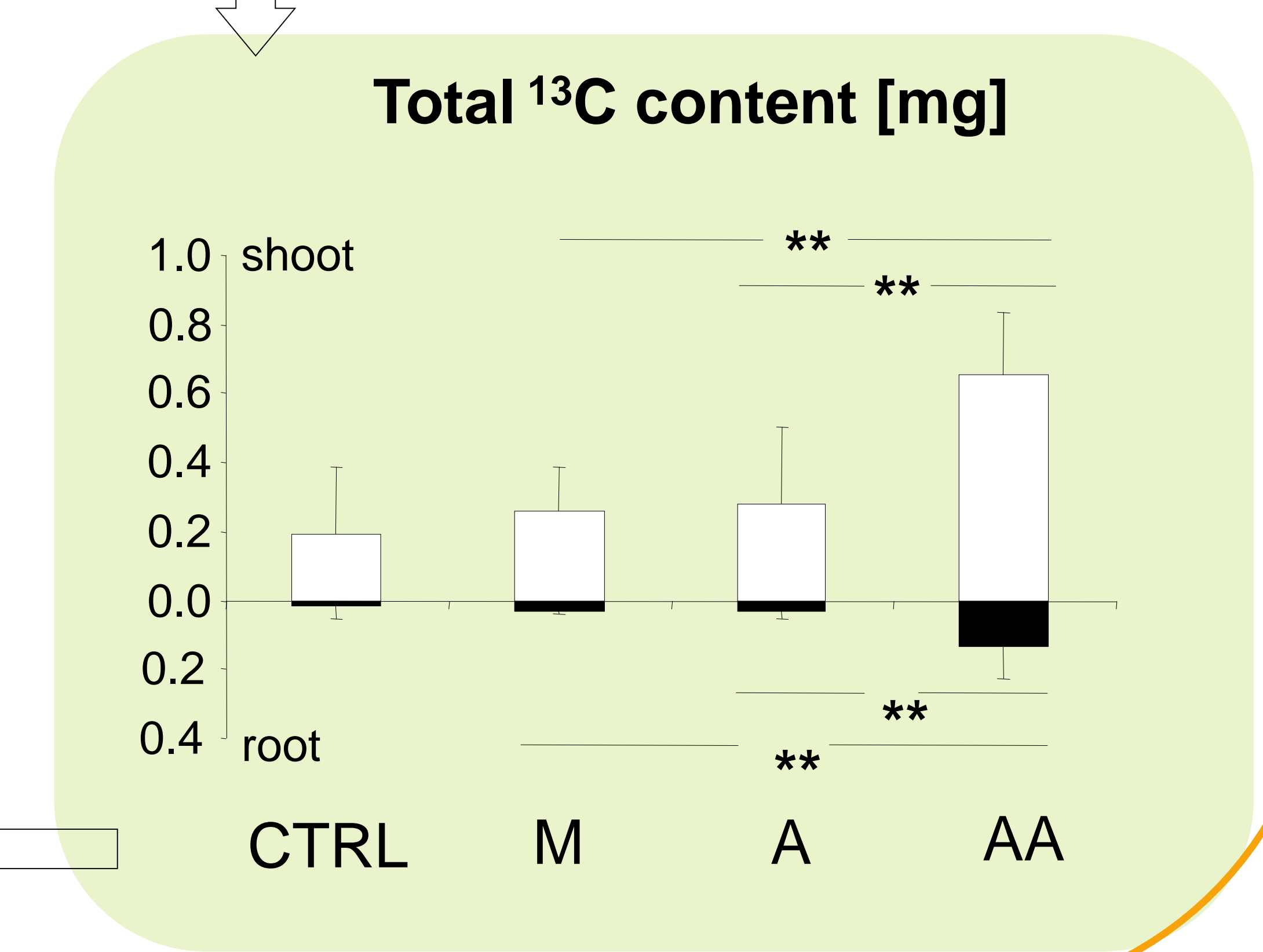
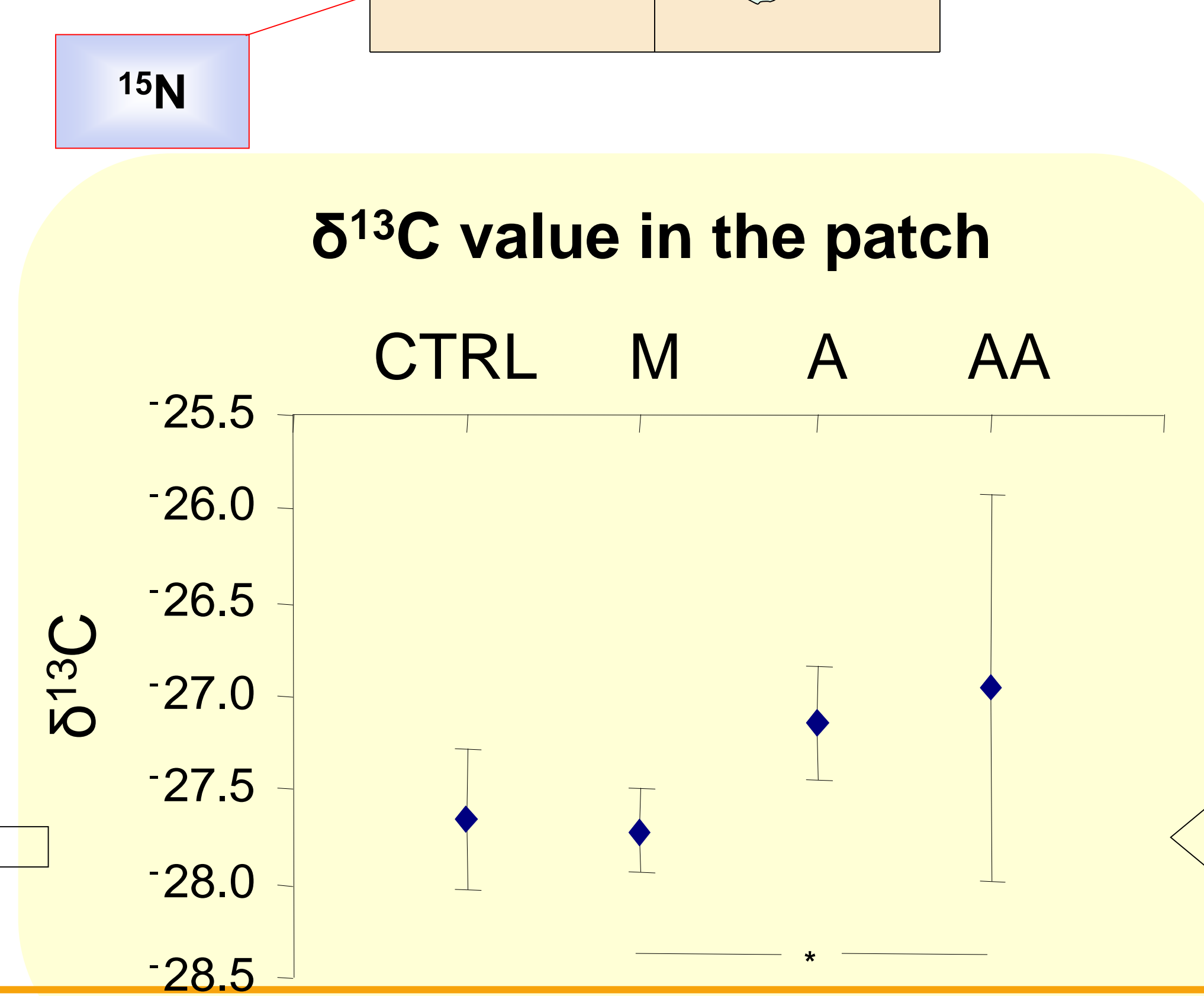
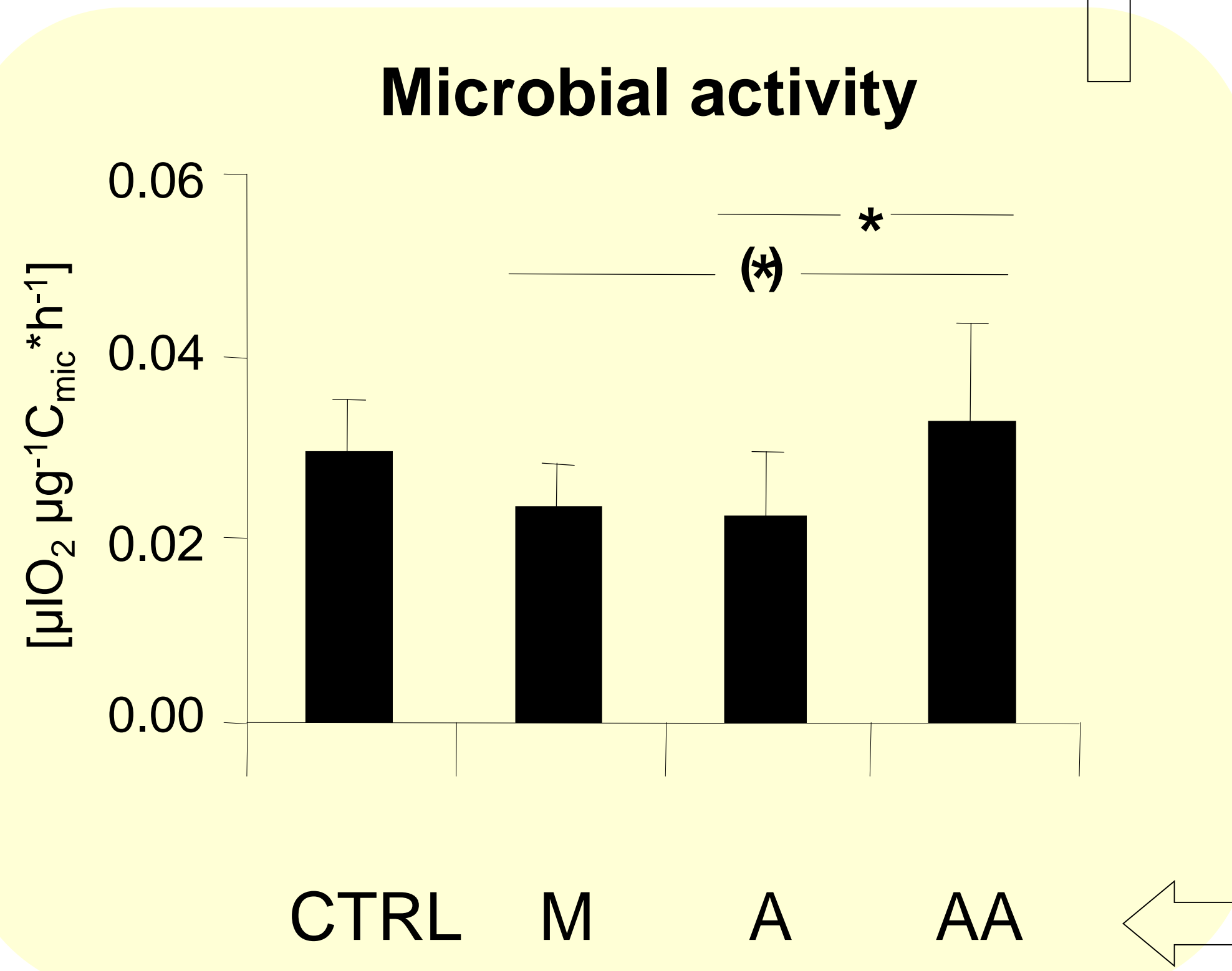
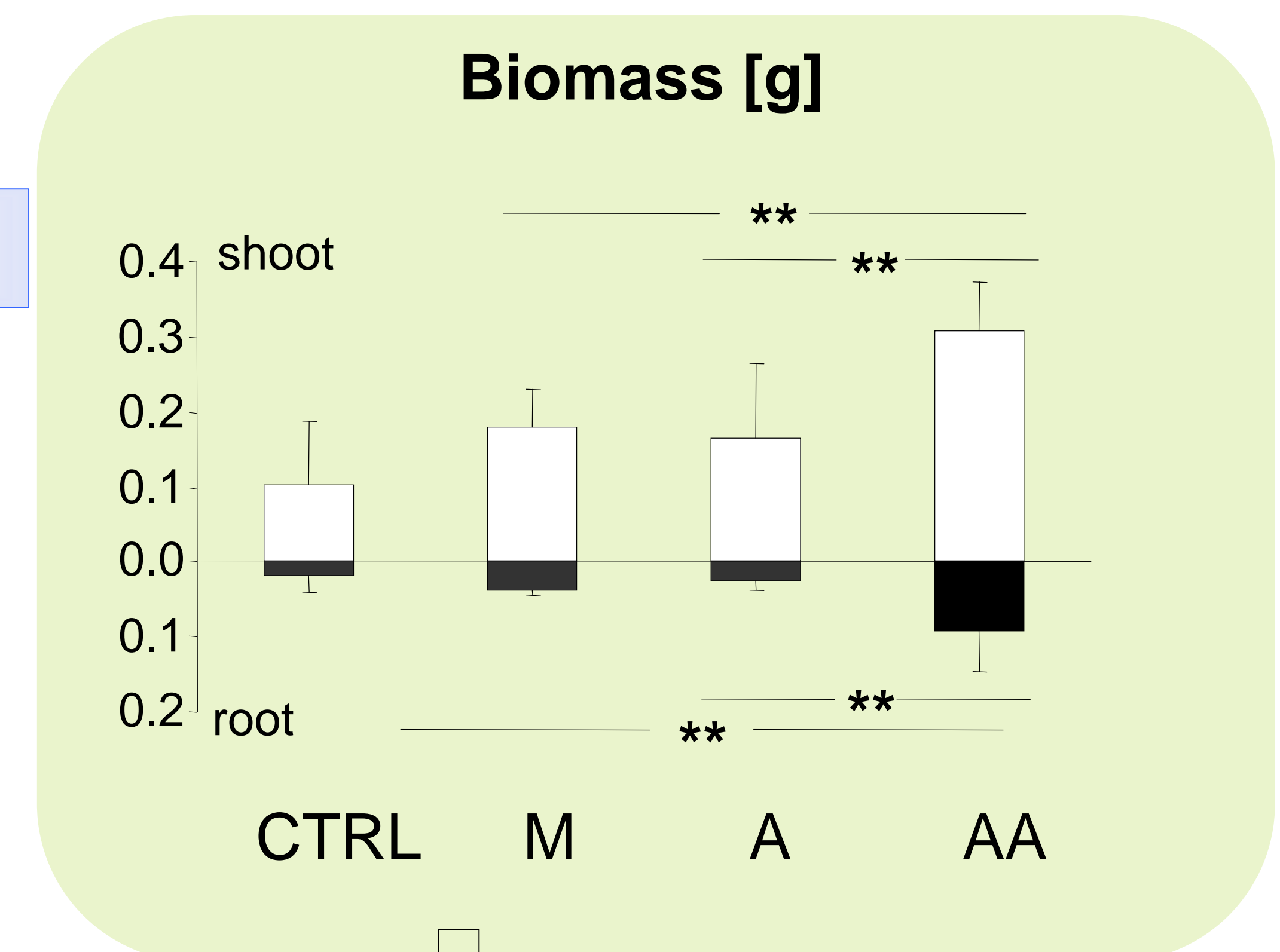
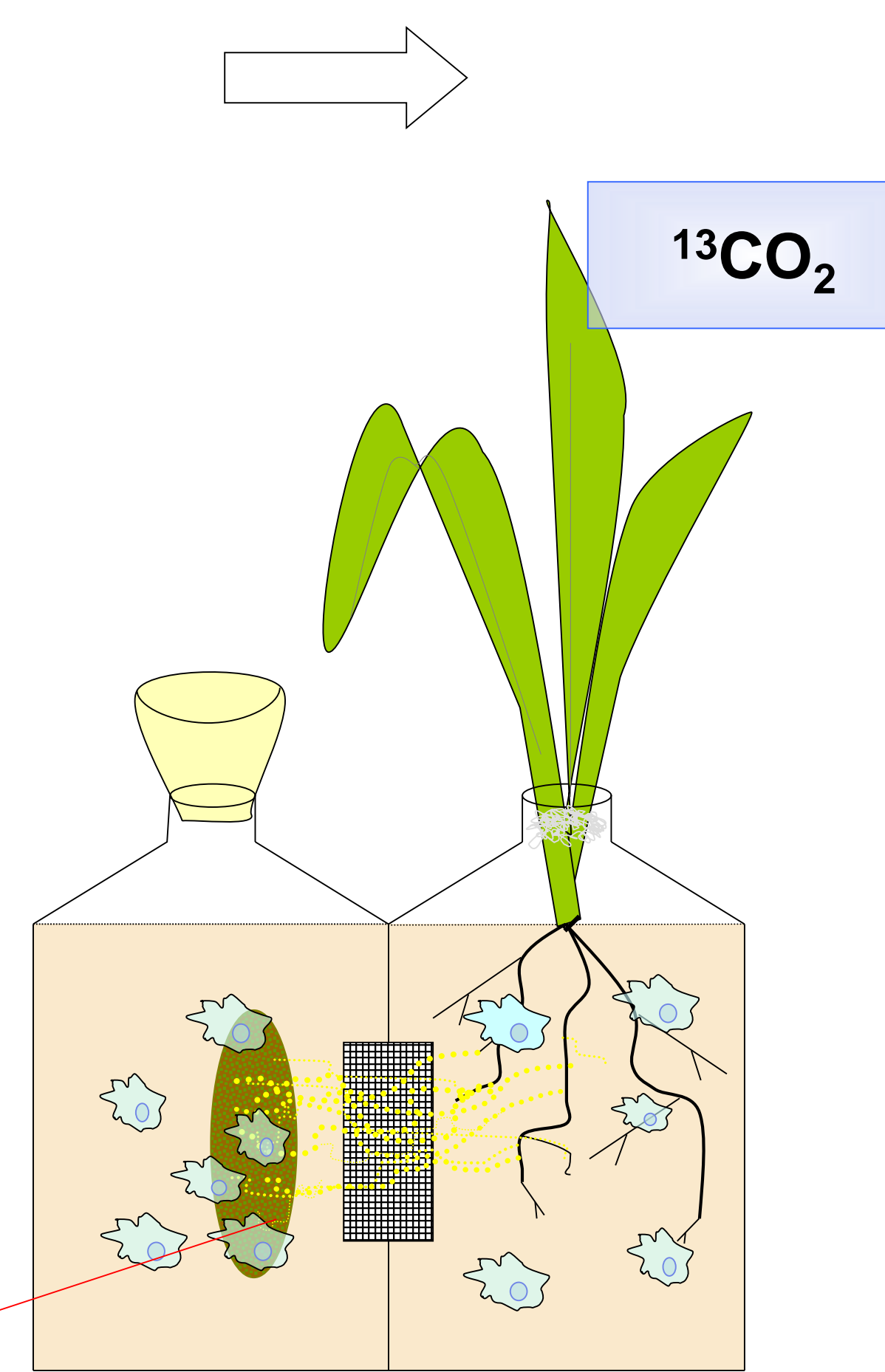
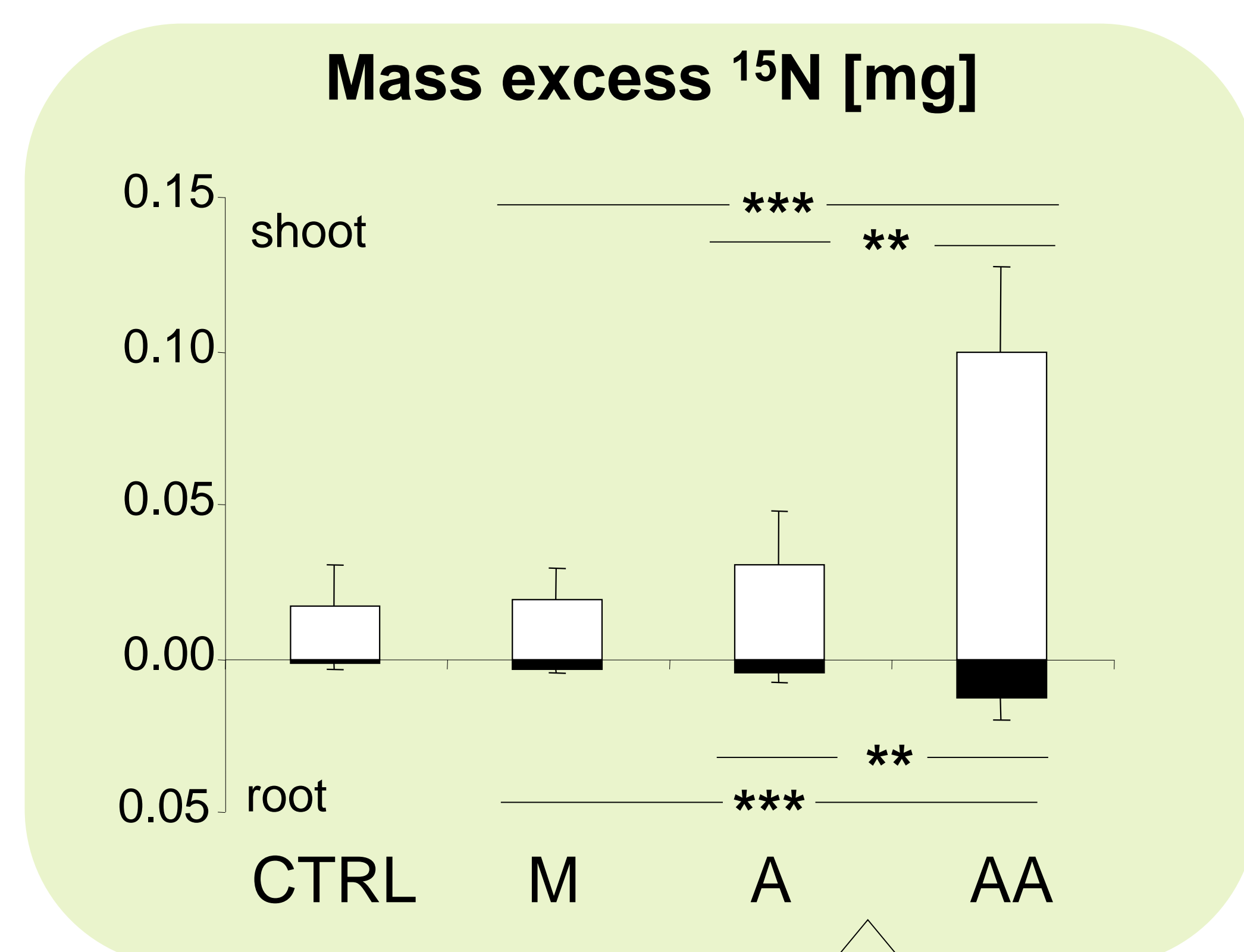
OBJECTIVES

- What is the AM function in the nitrogen nutrition of plants in response to
- plant C investments, growth and morphology?
 - trophic interactions with free living rhizobacteria and their grazers?

CONCLUSION

- AM was unable to mineralize N_{org} , but has transferred N released from consumed bacterial biomass during amoebal grazing to the host plant
- Protozoa increased transfer of recently fixed C to -and mineralization of N from organic patches for mycorrhizal uptake and translocation to *Plantago lanceolata*.
- only the additional presence of protozoa in the rhizosphere caused a 'win-win' situation for all partners in the protozoa - mycorrhiza - plant symbiosis

RESULTS



MATERIAL & METHODS

- Microcosms with different microbial communities were established:
- diverse natural bacterial community
 - *Glomus intraradices* colonized *Plantago lanceolata*
 - free-living naked amoeba *Acanthamoeba castellanii*
 - ¹⁵N labelled nutrient patch → plant's foraging capacity for N
 - ¹³CO₂ shoots pulse labelling → plant's C allocation to the patch
- (For more information on pulse labelling, see poster by C.Robin)

TREATMENTS

- I. Control (CTRL) : no access of AM into the litter patch
- II. Mycorrhiza (M): free access of AM into the litter patch
- III. Amoeba (A): Free access of AM into the litter patch + Amoeba in the litter patch
- IV. Amoeba Amoeba (AA): Free access of AM into the patch and AMO in litter patch and root compartment