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**Effect of different species of mycorrhizal
fungi on physiological characteristics of
sorghum in cadmium contaminated soil**



Definitions and Types

- Mycorrhizae : “fungus-root.”
- Mycorrhiza defines a (generally) mutually beneficial relationship between the root of a [plant](#) and a fungus that colonizes the plant root.
- inside the plant’s roots
- on the surfaces of the roots



Root cells of plants
(cross-section)

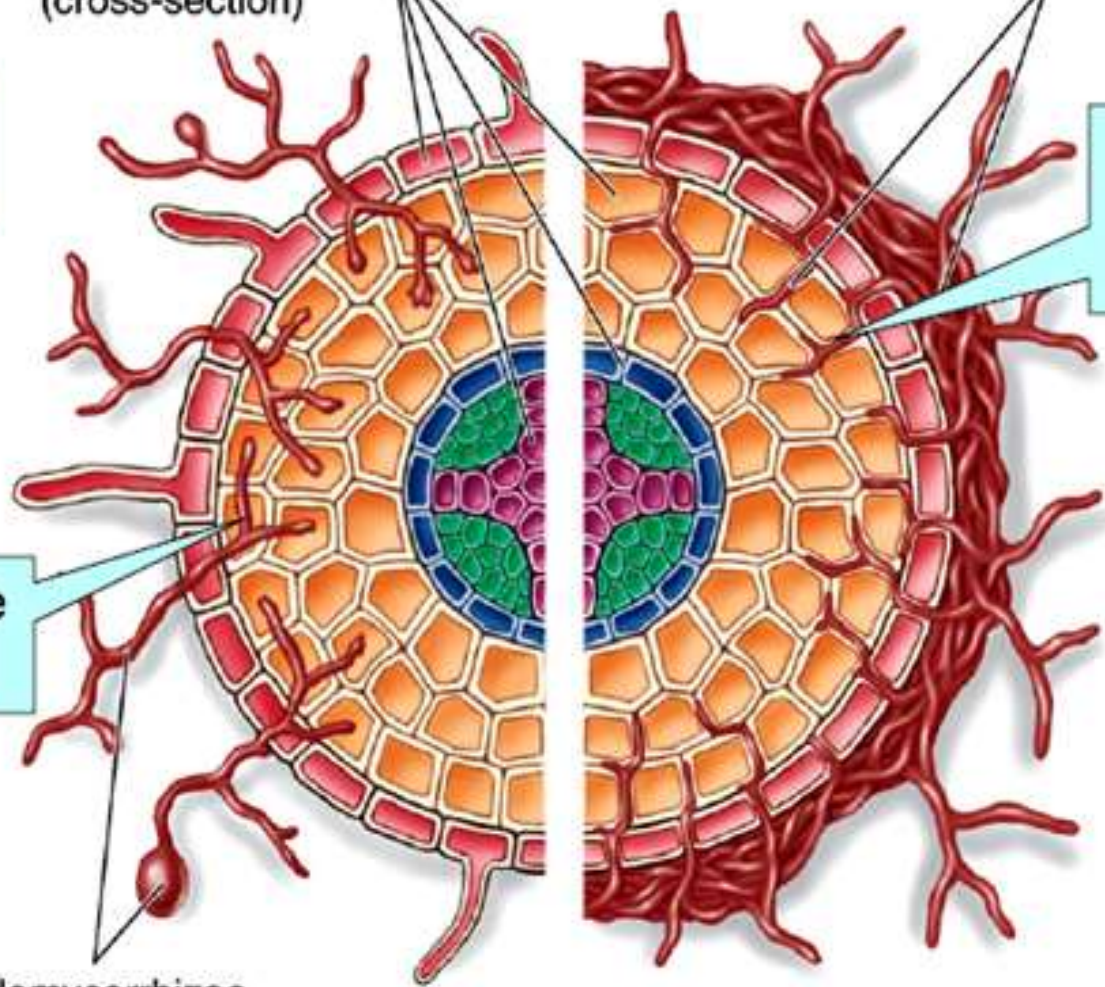
Ectomycorrhizae

Far more
common type

Hyphae do not
penetrate root
cells

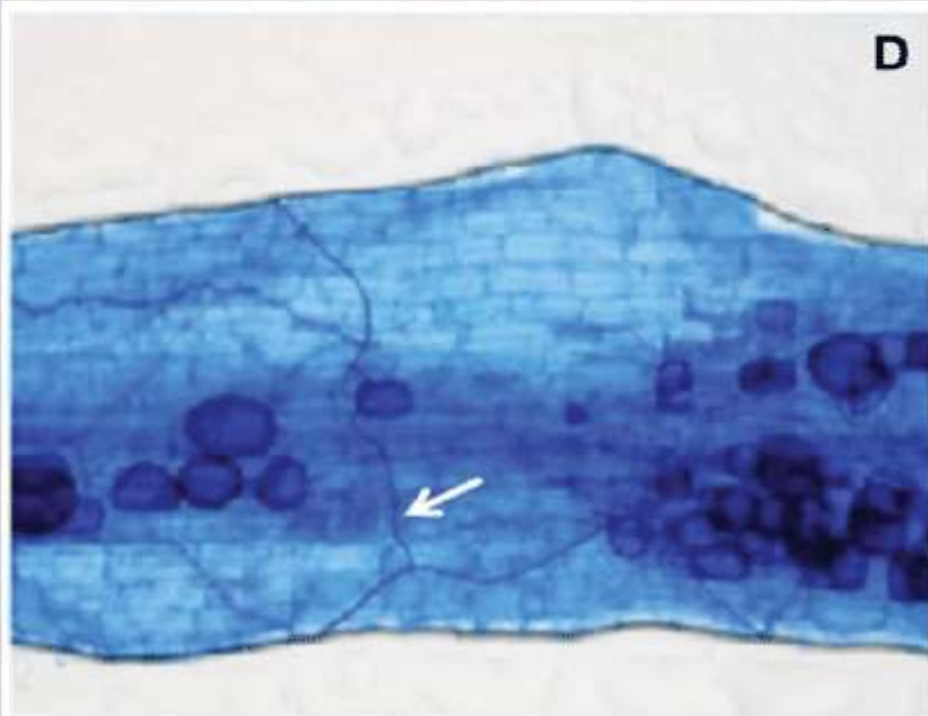
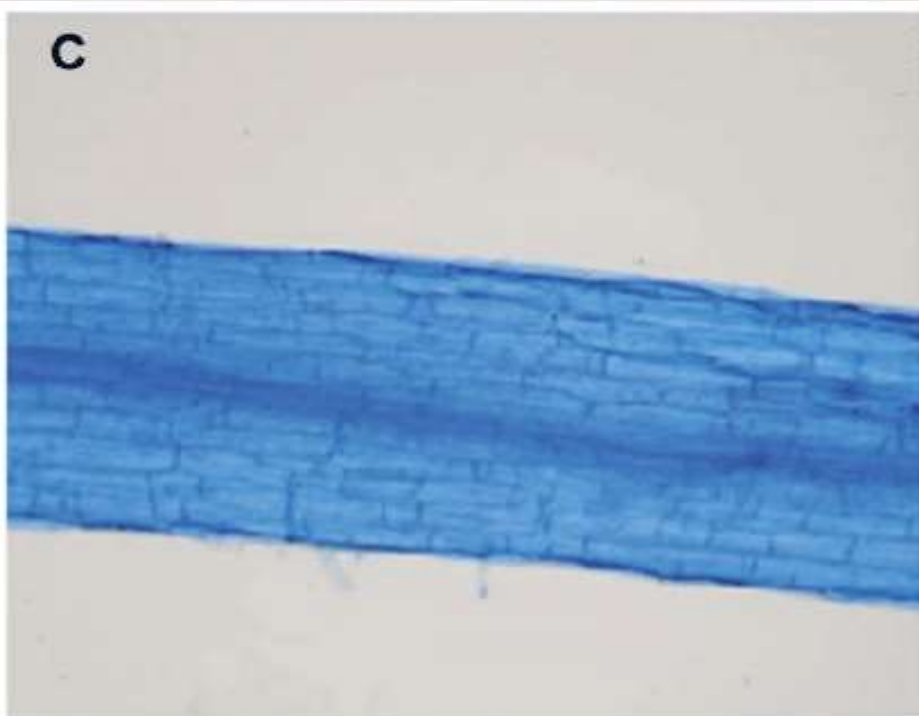
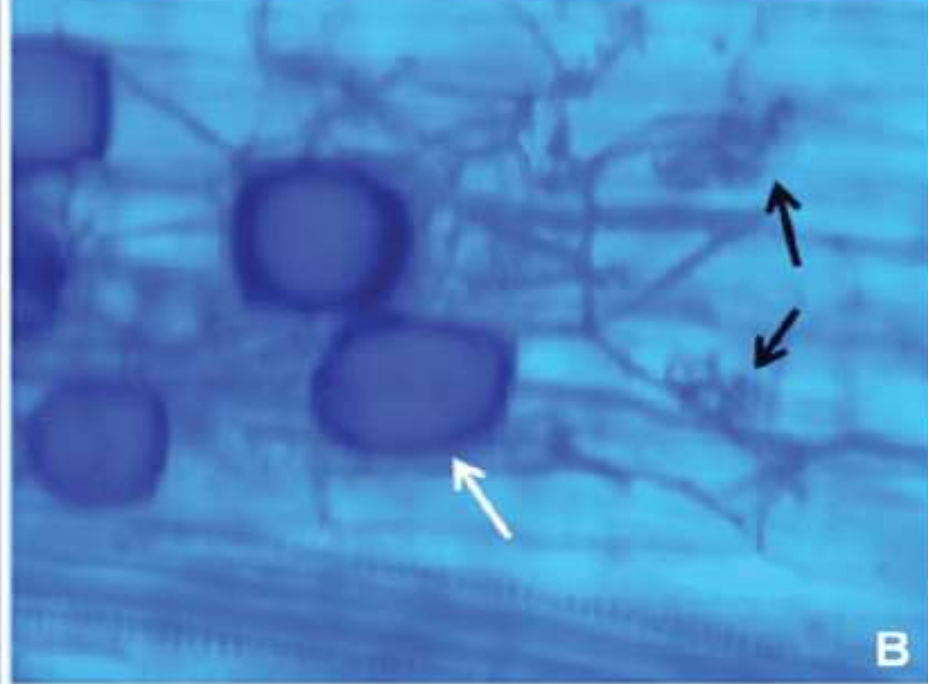
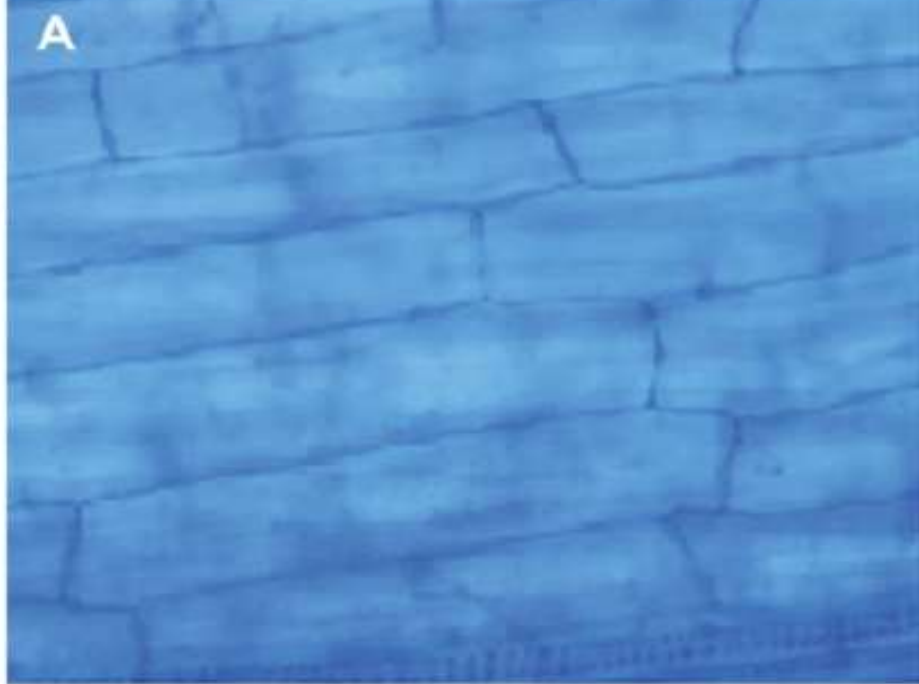
Hyphae penetrate
root cells

Endomycorrhizae

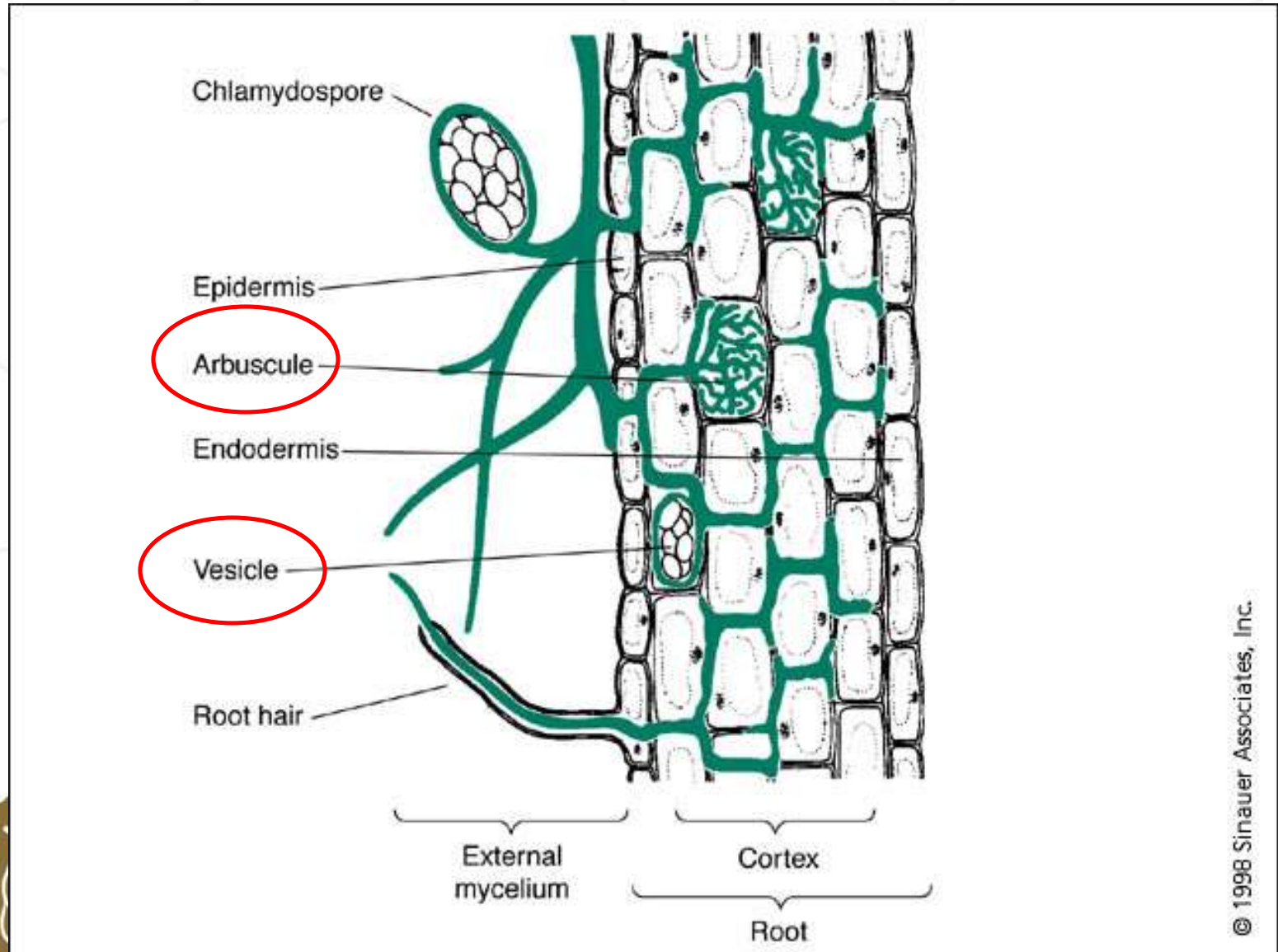


Ectomycorrhiza

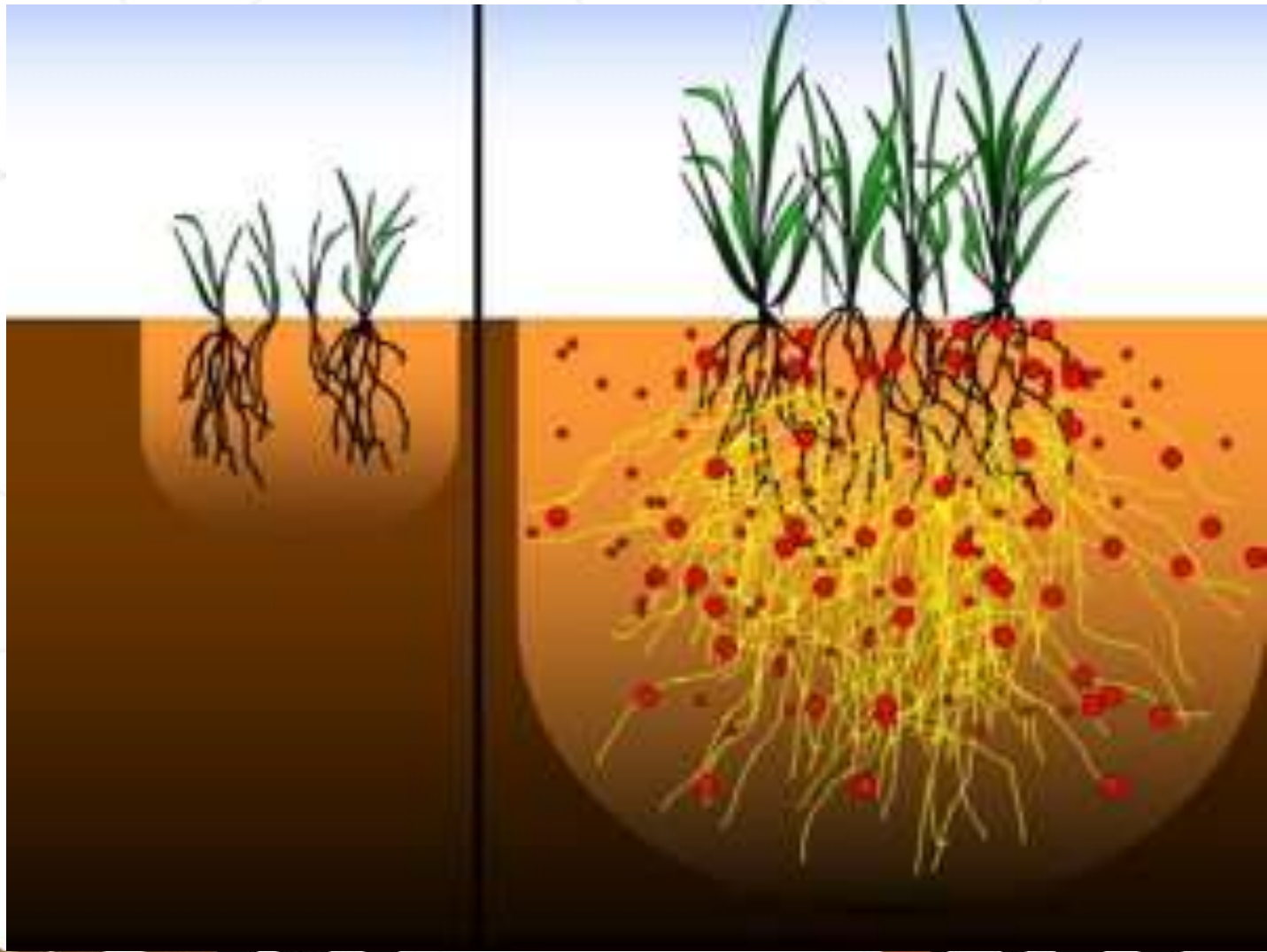




Structure of arbuscular mycorrhizae



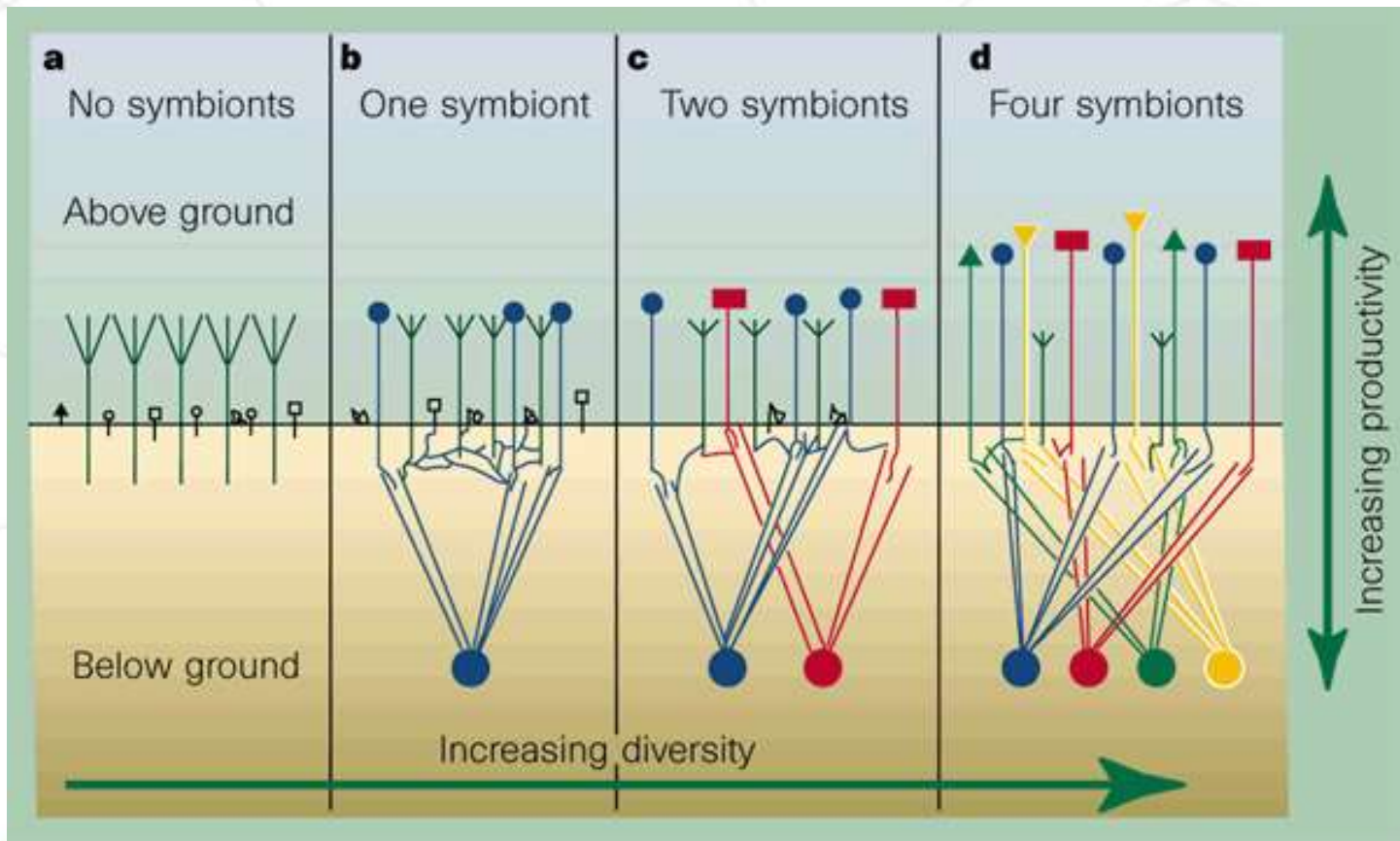




- In some cases, the relationship is not mutually beneficial. (when the fungus is mildly harmful to the plant, and when the plant feeds from the fungus)
- Not all plants will have mycorrhizal associations



Arbuscular mycorrhizal fungi promote plant diversity and productivity



Materials and Methods

Cadmium content in soil

1. 0
2. 40 mg/kg

AMF application

F0: without fungi

F1: *Glomus mosseae*

F2: *Glomus intraradices*

F3: *Glomus mosseae* + *Glomus intraradices*



Results and Discussions



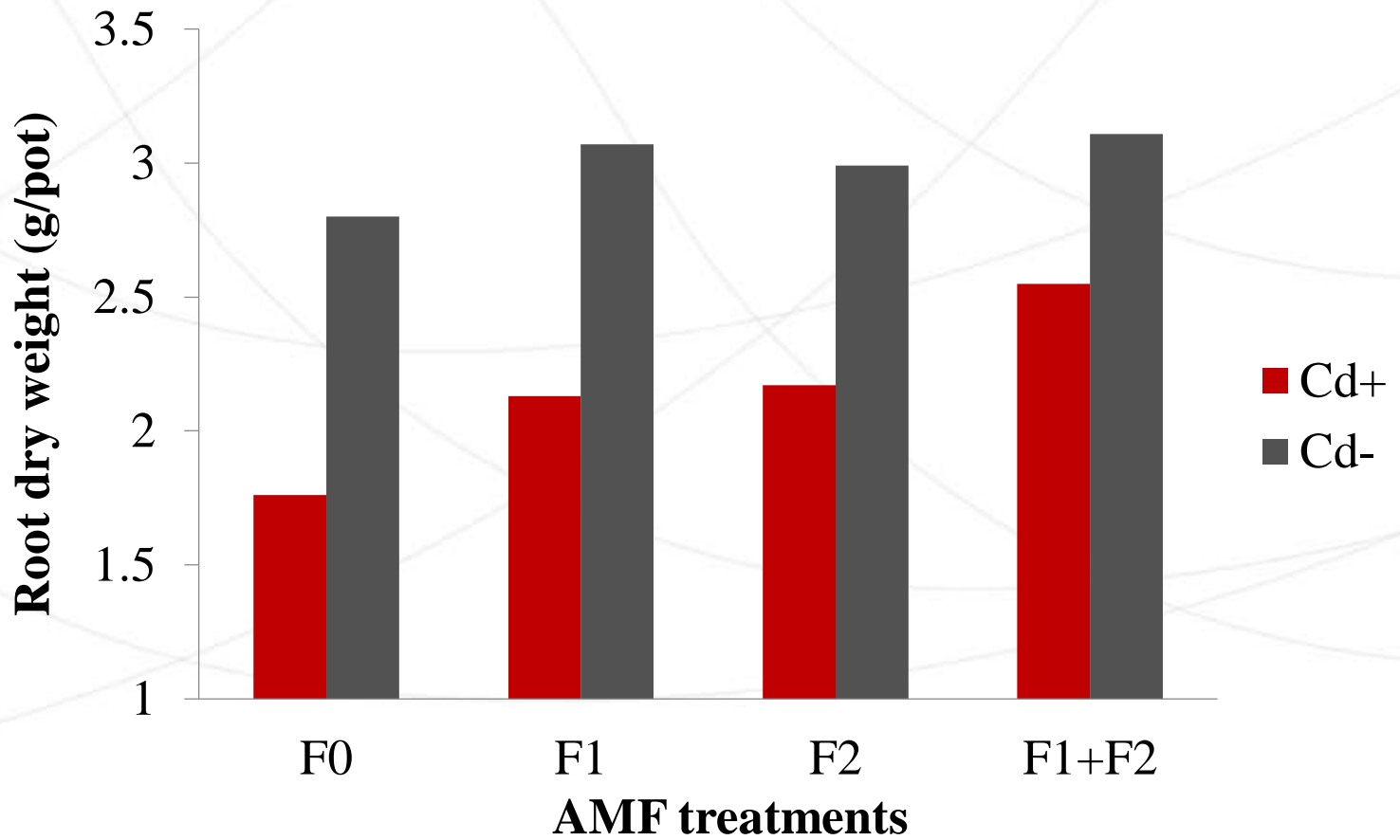


Fig 1. Effect of AMF treatments on root dry weight



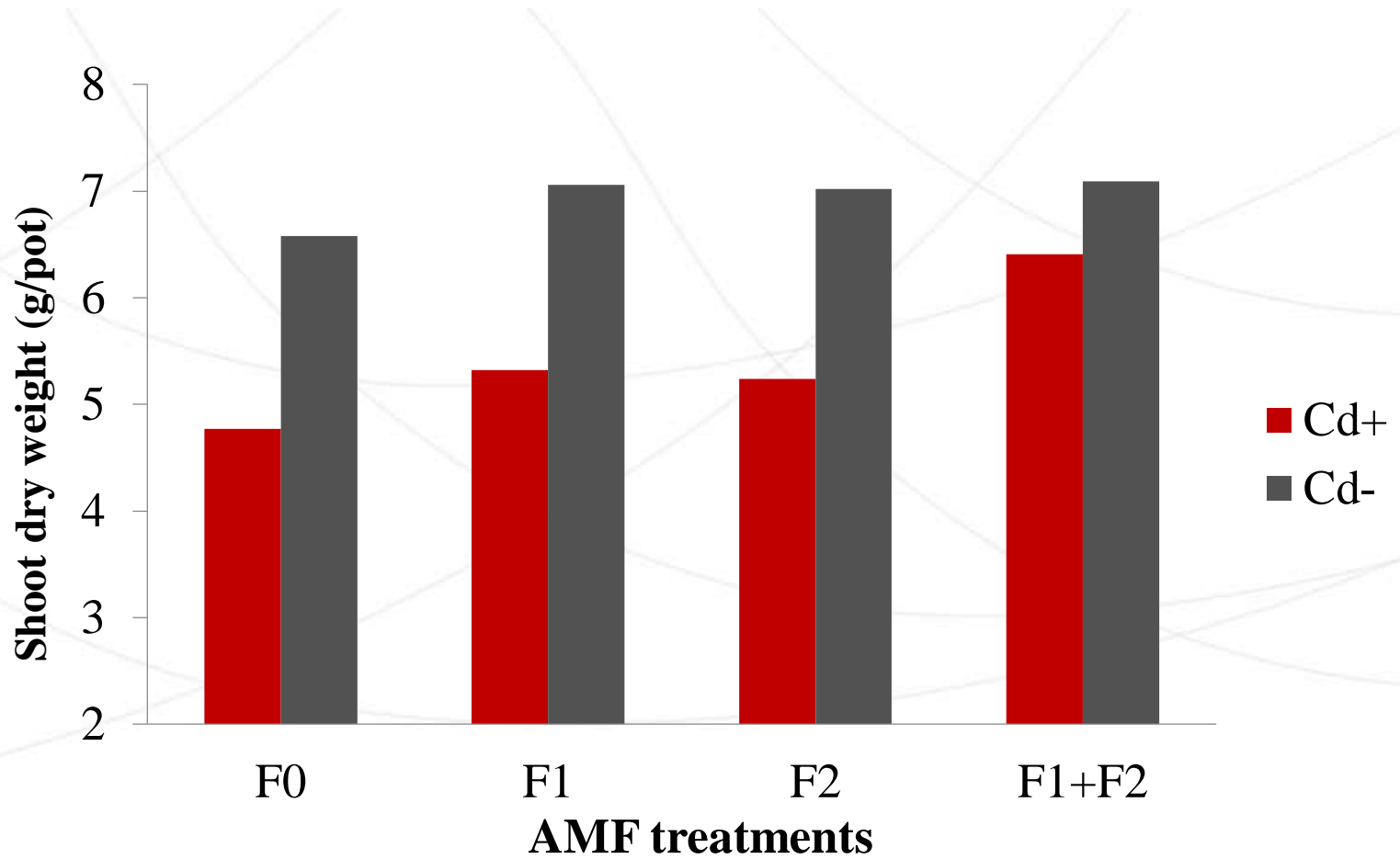


Fig 2. Effect of AMF treatments on shoot dry weight



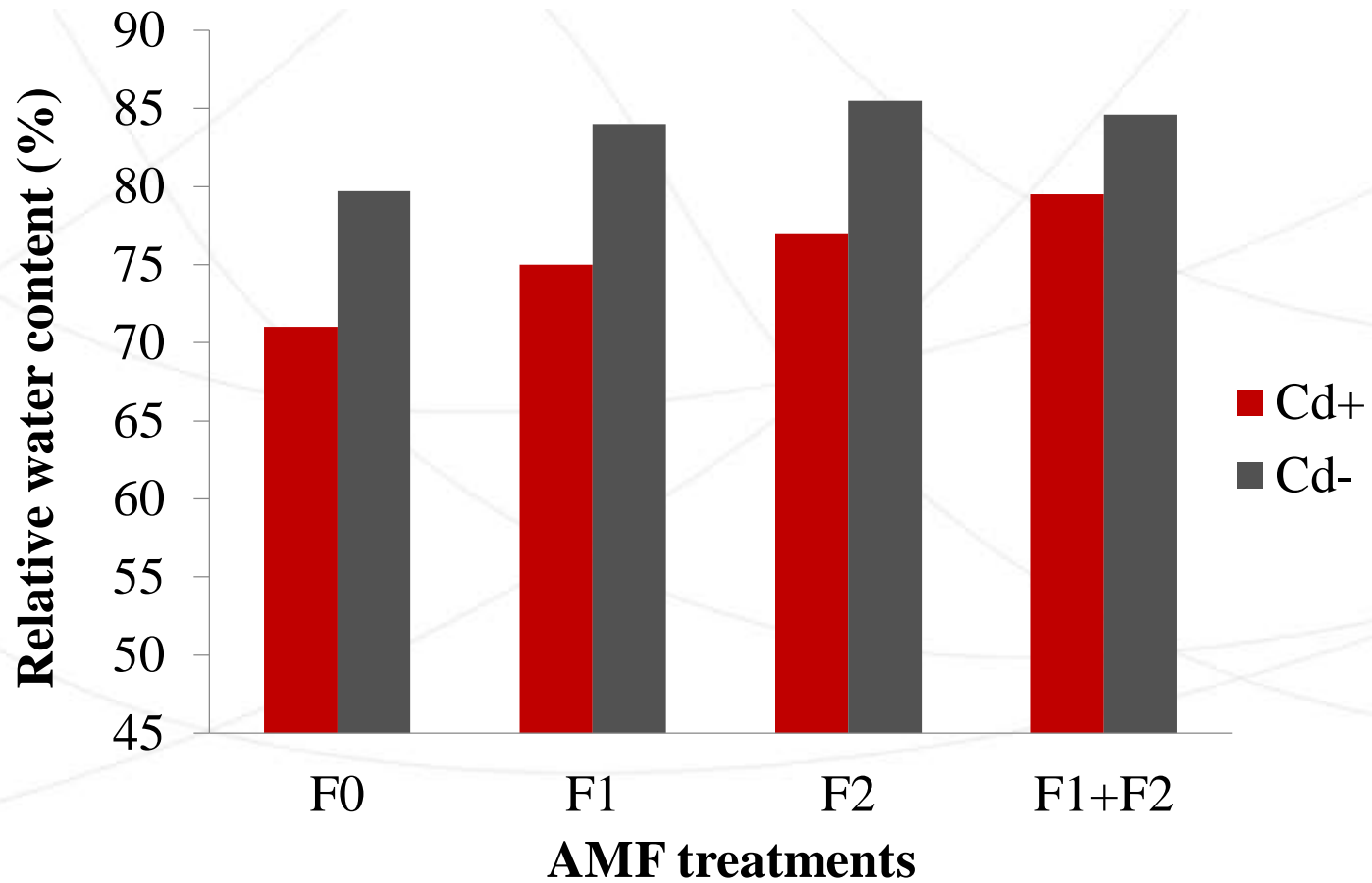


Fig 3. Effect of AMF treatments on leaf RWC



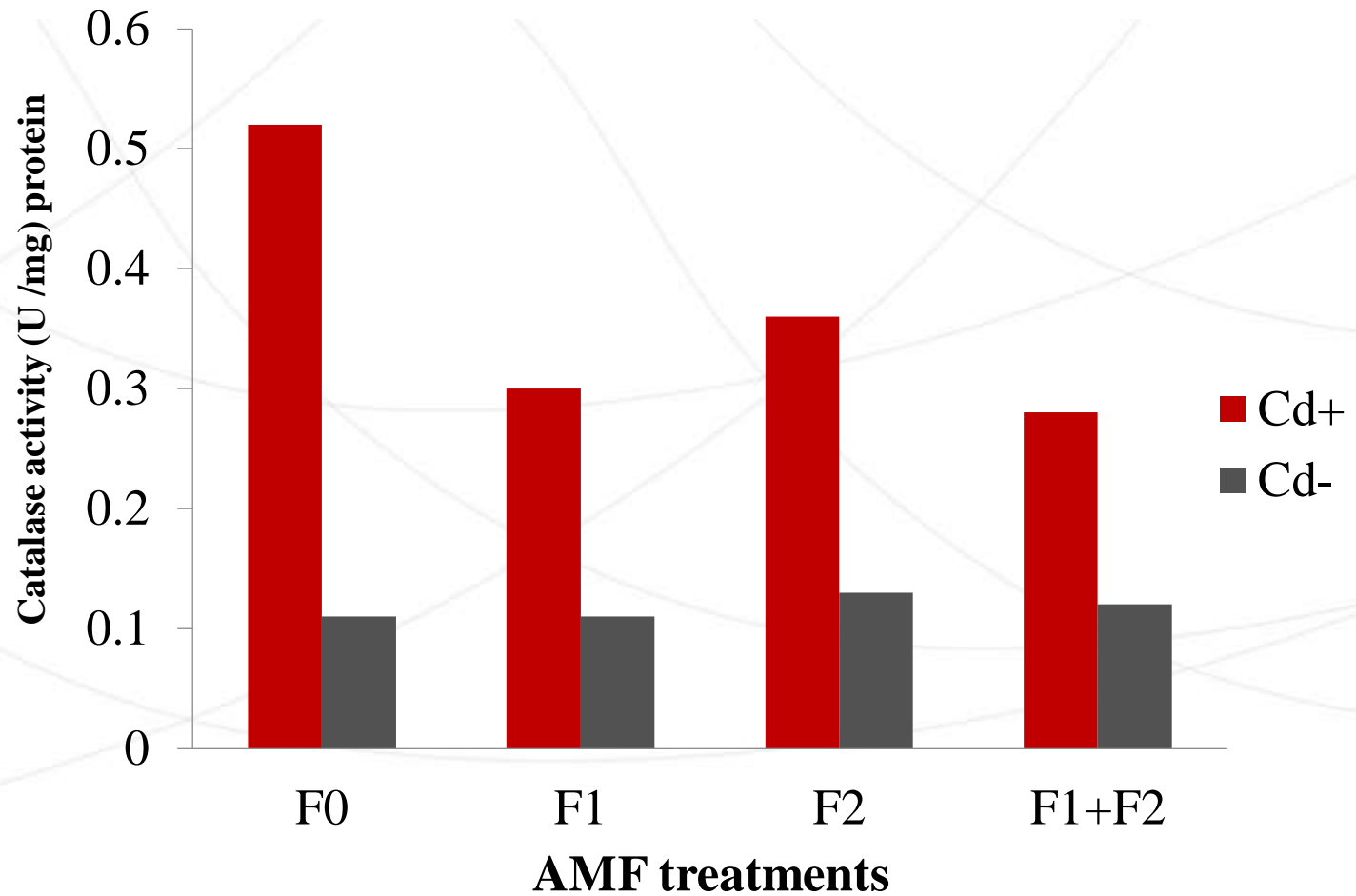


Fig 4. Effect of AMF treatments on CAT activity



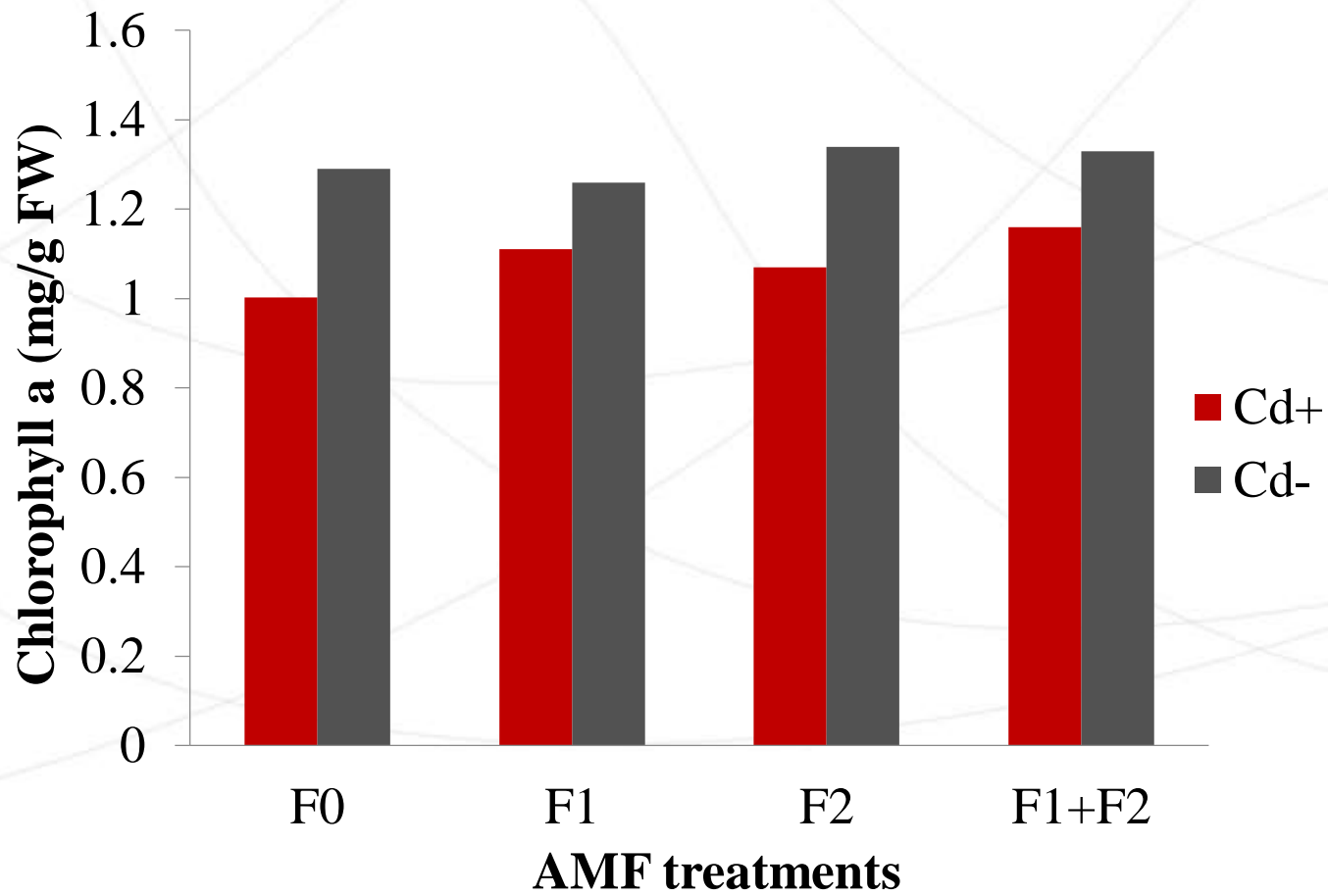


Fig 5. Effect of AMF treatments on leaf chlorophyll



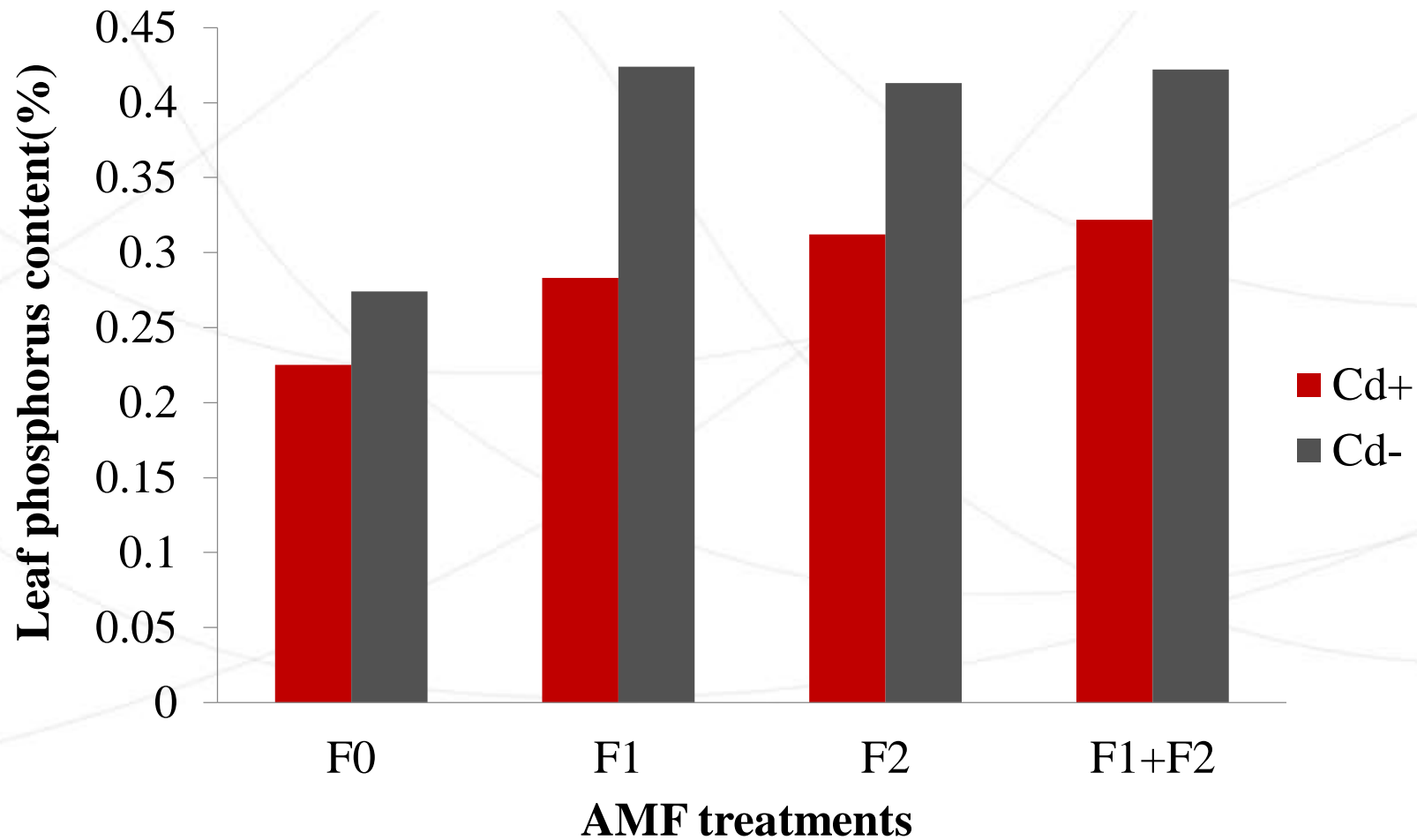


Fig 6. Effect of AMF treatments on leaf P content



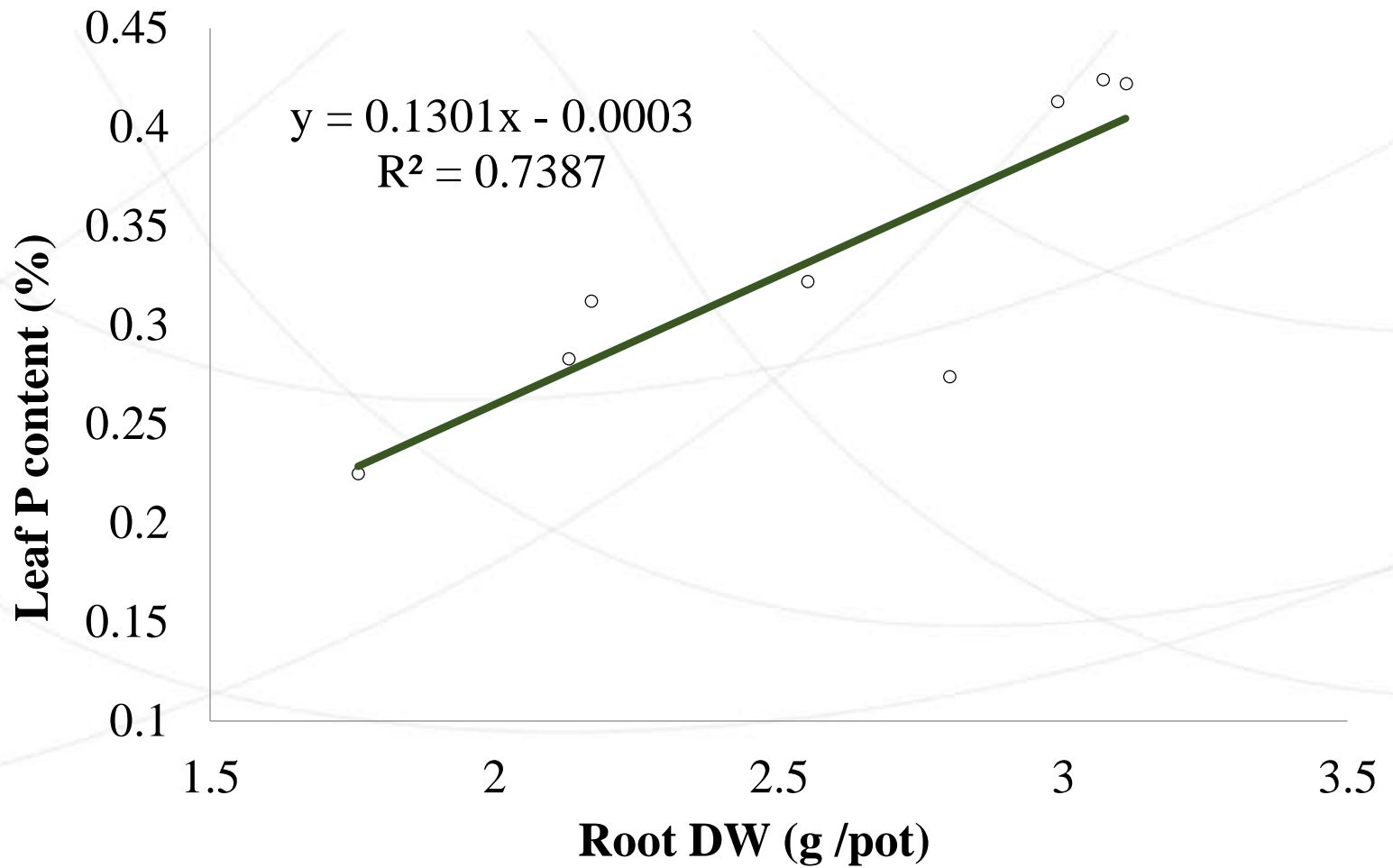


Fig 7. Correlation between root dry weight and P uptake



• Conclusions

1. Application of **AMF** improved the studied characteristics of sorghum
2. The positive effect of **AMF** in contaminated soil was higher.
3. Simultaneous application of both species of mycorrhiza significantly affected all of the traits.
4. under cadmium stress condition mono-inoculation with *Glomus mosseae* or *Glomus intraradices* had less positive effect on plant growth.
5. In **Cd** contaminated soils, application of different species of **AMF** to enhance the plant growth is recommendable.



A detailed illustration of a cross-section of soil. At the top, a single green leaf with a stem and root system grows from the surface. Below the surface, the soil is depicted in various shades of brown and grey. The soil is teeming with a diverse array of microscopic organisms, including various types of bacteria, fungi with long hyphae, and larger, more complex organisms like nematodes and protozoa. The organisms are rendered in white and light brown outlines, creating a dense and intricate scene of microbial life.

**Thank you for
your attention**

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