



Contribution ID: 817

Type: **Poster (+) Presentation**

Implications of plant exudates on the formation of rhizosheaths

Monday, 31 May 2021 19:35 (1 hour)

Root exudates stimulate microbial activity and functions as binding and adhesive agent that increases aggregate stability in the rhizosphere. The exudates produced from plant roots and microorganisms in rhizosphere plays a significant role in the formation of rhizosheath. A high viscosity stabilizes soil aggregates in the surrounding of the root and creates rhizosheath. The formation and stabilization of rhizosheath of maize plants under various soil water contents has been studied in the past but the influence of root exudates on the rhizosheath formation associated with other rheological properties still needs to be investigated and understood. Such knowledge will greatly enhance the understanding of how rhizosheath is formed under different root and seed exudates and effect of their physio-chemical properties on the adhesion properties of mucilage. The aim of this study is to provide the first combined quantitative data on how root and seed exudates of different plants affects rhizosheath formation. We hypothesized that mucilage will contribute in the formation of rhizosheaths. For this we used the mucilage of chia seeds which acts as a modelled plant root mucilage and mix it with soil in a five different concentration. After preparing the soil with mucilage, artificial roots (flax cords) are incorporated in this soil. After 48 hours at 25oC roots are removed and rhizosheath is measured. For further studies, rhizosheath after drying and wetting cycles, mucilage adhesion, simulation and rheological properties will be investigated under various soil water contents, soil texture, soil type and soil compaction.

Time Block Preference

Time Block B (14:00-17:00 CET)

References

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Student Poster Award

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