

Artificial soil studies reveal domain-specific preferences of microorganisms for the colonisation of different soil minerals and particle size fractions.

Artificial Soil

CASE STUDY

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Overview

- **Keywords:** Artificial soils, soil minerals, soil particle size fractions, soil microbial diversity, terminal restriction fragment length polymorphism
- **Aim of the study:** Analyse the importance of different mineral compositions for the diversity of soil microorganisms
- **Application:** Quantitative PCR
- **Sample name:** Artificial soil
- **Material:** FastPrep-24™ instrument, FastDNA™ SPIN Kit for Soil containing Lysing Matrix E
- **Buffer:** Sodium Phosphate buffer and MT buffer supplied with the FastDNA™ SPIN Kit for Soil

Protocol and Parameters

DNA was extracted with the FastDNA™ SPIN Kit for Soil using the FastPrep-24™ instrument according to the manufacturer's instructions, using the following modifications:

1. Volumes of sodium phosphate buffer and supplied 'MT-buffer' were adjusted to 950 and 120 µL, respectively.
2. Bead-beating was run twice for 45 seconds at a speed of 6.5 m/s.
3. The samples were then centrifuged for 5 minutes at 14,000 x g and room temperature.
4. The DNA bound to the binding matrix of the FastDNA™ SPIN Kit was washed twice with 1 mL 5.5 M guanidine thiocyanate to remove coextracted contaminants.
5. After elution of DNA with 100 µL distilled water, this step was repeated using the eluate.

Conclusion

The combination of FastDNA™ SPIN Kit for Soil and the FastPrep-24™ instrument provide a high quality of gDNA.

The qPCR results revealed that the mineral composition and the particle size fractions have specific and different selective effects on soil samples.

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