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Extracellular DNA rise up in soil by water capillarity

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As reported by several papers, the extracellular DNA could move through soil profile by gravity following the downward water movement. In this study we have shown the upward movement of extracellular DNA through the soil profile by capillarity.

The microcosm experiments were carried out by utilizing the genomic .DNA extracted form *Acinetobacter sp*. characterized by the presence of the 35S promoter and the nptII gene which confers the resistance to kanamicin. The absence of the 35S-nptII target segment in soil was previously determined by PCR. The utilized soil was sampled at Romola (near Florence) and classified as loamy soil.

DNA was diluted in sterile distilled water, and the water amount was sufficient to wet the whole soil column in 1 hour. The bottom side of the microcosm column with soil was put in contact with the DNA-water solution. The presence of the target DNA in the soil microcosm was determined by PCR amplification the presence of the DNA target segment at different distances from the bottom after 1hour, 1 and 3 days of incubation. The extracellular DNA rised up through the soil microcosm column for 6 – 8 cm.