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# Does water repellency influence total and active bacterial communities in urban soils?

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Bacterial communities of urban soils are up to now little investigated. Urban soils represent extreme habitats for microorganisms because of small scale heterogeneity concerning hydrophobic and hydrophilic areas. Changes in the bacterial community structure were reported as affected by drying and rewetting of soils [1]. In this study we focus on the influence of water repellence on microbial composition and activity. We examined bacterial numbers, community composition and bacterial activity of hydrophobic and hydrophilic areas in the Tiergarten Park in Berlin.

Traditional cultivation techniques and molecular methods, such as BIOLOG and denaturing gradient gel electrophoresis (DGGE), were applied to investigate the bacterial soil community.

Cultivation of soil samples on three different media resulted in higher CFU numbers in hydrophobic zones than in hydrophilic. The total number of bacteria (DAPI counts) showed no significant differences between both areas. DGGE based DNA fingerprints of total bacterial community DNA showed significant differences. BIOLOG data revealed differing substrate utilization patterns for hydrophilic and hydrophobic areas.

[1] Denef, K. et al. (2001): Soil Biol. & Biochem. (33) 1599 - 1611