



Isolation of siderophore producing bacteria from acidic habitates

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Siderophores are small metal chelating compounds produced by many soil organisms under iron limiting conditions. Due to their ability to complex many metal and metalloid ions, they find application in medicine and environment, e.g. in bioremediation of contaminated soils. To find new interesting siderophore producers and extend the knowledge of siderophore production among bacteria living in acidic habitats, three environmental soil samples were collected around Freiberg (Saxony) and suspended in saline. These suspensions showed pH values between 2.7 and 6.3 and were plated on agar plates containing blue Chrome azurol S Fe(III) dye to screen for siderophore production. Orange halos around the colonies indicated siderophore producing strains. Eight very active siderophore producing colonies were isolated and identified as neutrophilic *Pseudomonas* spp. using 16S rDNA sequencing. Quantitative experiments with liquid Chrome azurol S assay showed, that the isolates produce up to 200 μ M siderophore (DFOB equivalent). Next to Fe, the siderophores of all isolates show metal binding activity towards Al, some of them towards Ga, Cu, and V. Further investigations showed, that some isolates produce fluorescing siderophores, while others show no fluorescens. Most of the isolates showed high similarity to known siderophore producers as *P. fluorescens* and *P. salomonii* on phylogenetic and biochemical level, while one isolate seems to be very different from other *Pseudomonas* species.

In this experiment we have not only been able to show the presence of siderophore producing species in acidic habitats and show their ability to bind different metal ions, we also discovered a *Pseudomonas* isolate which we could not match with any known *Pseudomonas* species on phylogenetic and biochemical level so far.