

Plant-microorganisms interactions for quarry revegetalization in Algeria

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To face rapid city extension and building demand in Algeria more and more dunes are exploited for sand extraction just behind beaches on the sea border, breaking the whole littoral ecosystem equilibrium. After exploitation damaged landscape, no soil, no plant cover, neighbour fertile soils covered with sand. Our French-Algerian Tassili bilateral project 2010 (CMEP 10MDU791) is devoted to land restoration in two reference quarries in West Algeria. Several research groups, two private companies and Ministry service of quarries and mines are involved for multidisciplinary actions. After local plant occurrence survey, we focused on several adapted legume species, *Retama monosperma*, *Ononis natrix*, *Ononis natrix* ssp *ramossissima*, *Lotus creticus*, *Calicotome* sp. and collected seeds, nodules and roots for further rhizobial and mycorrhizal fungi. Rhizobia were isolated and characterized phenotypically and by 16S sequencing. Roots were observed for qualitative and quantitative mycorrhizal infection. *Acacia cyanophylla* and some *Casuarinaceae* spp. tree species such as *C. equisetifolia* have already been introduced for degraded areas rehabilitation in Algeria. These species are also included in our study. Soil mycorrhizogenous potential is evaluated in a forest adjacent to the quarry, along a degradation gradient. Legume and non-legume candidate species will be evaluated for their effectiveness for nitrogen and phosphorous acquisition, their response to bacterial/fungal inoculation, their growth rate, their ability to persist in the soil after planting, their contribution to soil fertilization. Soil reconstitution and physico-chemical characteristics will be followed in time, especially fixed nitrogen, organic matter and C/N ratio.