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Isolation of Rhizobia

The genus *Cytisus* is widespread in the Mediterranean Basin. It comprises ca. 80 species, eight of which grow in Northern Algeria. *Broom*, *Cytisus villosus* is disseminated in Northern Africa, appearing from the mountains of Central and Northern Morocco to the mountains of the Cape Bon in Tunisia (Quaezel and Madidi 1962). In the Central-Western region of the Maroc an R.F., endosymbiotic bacteria from *C. villosus* growing have been described. These bacteria belong to different species of the genus *Bradyrhizobium* (Chatboura et al. 2011a, 2011b, 2012). In Northeastern Algeria, Aboula et al. 2014 have described and characterized by phylogenetic and phenotypic analysis the isolate from nodules of *C. villosus.*

The *Lupinus* genus includes approximately 275 species classified most of them were originated from diversity centers in Southern and Western North America, the Andean areas of South America, and the Mediterranean regions of North Africa and Asia. (Kurlovich and Stankovskii 2002). Slow legumes of the genus *Retama* are endemic to the Mediterranean Basin and distributed in the various Mediterranean climates (from humid to arid) and ecosystems since *Retama* shrubs are tolerant to extreme drought conditions. Three species, *Retama monosperma* and *Retama retama* are recognized within the *Retama* genus. These plant species are of ecogical interest for dunestabilisation, soil fixation, and revegetation of semiarid ecosystems (Caravaca et al., 2003).

Our objective is to study the biodiversity and ecological characteristics of nitrogen-fixing bacteria by symbiosis at the root nodules of the different species belonging to the *Genisteae* tribe. Subsequently the selection of rhizobia adapted to environmental conditions could be used for economic and environmental purposes. This study was supported in part in the Algero-Espagnoled (AECID / PCP project research (A1 / 038234/11)). This project was developed on the spontaneous legumes of Algeria by the Center of Biotechnology and Plant Genomics of the Polytechnic University of Madrid (CSGBP / UPM) in Spain in collaboration with the Laboratory of Microbial Ecology of the University of Bejaia (LEM / UAMB).

Isolation of Rhizobia

**Phylogenetic analysis of 16S rRNA gene sequences**

Phylogenetic analysis of 436pb

**Results**

Phylogenetic analysis of 16S rRNA gene sequences

With the exception of 16S rRNA, it is representing species of the phylogenetic tree, isolated from *Lupinus microanthus* and *Retama villosus* legumes on soil sample from central Sahara. *Lupinus microanthus* and *Retama villosus* rhizobia are located in clade I and II respectively. (ADN/16S tree based on 1201pb).

**Conclusion**

- Strains of rhizobia isolated from root nodules of *Lupinus microanthus* and *Retama villosus* from northeastern Algeria belong to the genus *Bradyrhizobium*.
- A very important diversity characterizes these different *Bradyrhizobium* sp.

**References**


