

## ABSTRACT

### CHARACTERIZATION AND IDENTIFICATION OF *RHIZOBIUM* INFECTING CALIFORNIA NATIVE CLOVER

Towards understanding the evolution of symbiotic associations, studies examining populations of *Rhizobium* associated with native clover species of central California were performed. Previous work using MLEE demonstrated that a single *Rhizobium* type infected four annual clover species in the foothills. Conversely two genetically distinct host-specific types infected perennial clovers in high mountain meadows. The current study sought to determine the genetic relatedness of three *Rhizobium* populations by using four PCR-based methods: REP, ERIC, BOX-PCR, and 16S-23S IGS RFLP. Results showed that two of the three *Rhizobium* spp. populations characterized were genetically similar and are spatially separated infecting both the annual foothill clovers and one group of mountain perennial clovers. In contrast, the other *Rhizobium* group is narrowly associated with a second group of perennial clovers. A dendrogram showing similarity patterns of *Rhizobium* types correlates to the legume phylogeny, providing evidence of coevolution of the bacterial chromosome and plant host species.

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