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Phylogenetic analysis reveals gene conversions in multigene families of rhizobia

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ABSTRACT. Gene families are an important and intrinsic trait of rhizobial species. These gene copies can participate in non-reciprocal recombination events, also called gene conversions. Gene conversion has diverse roles, but it is usually implicated in the evolution of multigene families. Here, we searched for gene conversions in multigene families of six representative rhizobial genomes. We identified 11 gene families with different numbers of copies, genome location and function in CFN42 and CIAT652 strains of *Rhizobium etli*, *Rhizobium* sp NGR234, *Mesorhizobium loti* MAFF303099, *Sinorhizobium meliloti* 1021, and *Bradyrhizobium japonicum* USDA110. Gene conversions were detected by phylogenetic inference in the *nifD* and *nifK* gene families in *R. etli*. Sequence analysis confirmed multiple gene conversions in these two gene families. We suggest that gene conversion events have an important role in homogenizing multigene families in rhizobia.

Key words: Rhizobia; Gene conversion; Concerted evolution; Multigene families

