

P032 Characterization of the *nirK* gene of *Rhizobium etli* CFN42
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Rhizobium etli CFN42 is a nitrogen fixing bacterium that induces symbiotic nodule formation on the legume *Phaseolus vulgaris*. In this work, we show that this bacterium is unable to grow anaerobically with 10 mM nitrate but it grows with 1.5 mM nitrite as terminal electron acceptor. The poor growth rate observed with nitrite indicates that the energy coupling during nitrite reduction may be very low. This strain does not express nitrate reductase activity, however it shows nitrite reductase activity after incubation of the cells under anaerobic conditions. *R. etli* CFN42 contains the *nirK* gene encoding the copper-containing nitrite reductase which is located on the cryptic plasmid pCFN42f. Mutational analysis have demonstrated that anaerobic growth of a *nirK* deficient mutant is affected by the presence of nitrite. Nitrite reductase activity and nitrite uptake are highly diminished in the *nirK* mutant compared to the wild type levels after incubation under anaerobic conditions. Our results suggest that the copper-containing nitrite reductase may have both, a respiratory and, a nitrite detoxifying role in *R. etli* when it grows under anaerobic conditions.