

S5-2 Interaction between *Aeschynomene* and photosynthetic *Bradyrhizobium*: an enigmatic Nod-independent symbiotic process

Katia Bonaldi, Fabienne Cartieaux, Joel Fardoux, Laure Hannibal, G. Bastien, Lionel Moulin, Nico Nouwen, Yves Prin, Adeline Rénier, and Eric Giraud

Laboratoire des Symbioses Tropicales et Méditerranéennes, CIRAD/INRA/IRD/SupAgro/UM2, UMR113, 34398 Montpellier Cedex, France

Nodule formation in legume plants was assumed to be exclusively initiated by the binding of bacterial host-specific lipochitooligosaccharidic Nod factors to kinase-like receptors of the plant. Recently, sequence analysis of the genomes of two photosynthetic *Bradyrhizobium* strains (ORS278 and BTAi1), symbiotic of some *Aeschynomene* species, overturned this dogma because these bacteria lack the canonical nodulation genes (*nodABC*) involved in the synthesis of Nod factors [1]. This indicates that certain rhizobia use another mechanism to trigger nodule organogenesis in legumes. The most relevant characteristic of the photosynthetic *Bradyrhizobium* genomes will be presented. To identify the bacterial genes involved during this symbiosis, we individually screened a large Tn5 mutant library (20,000 mutants) of *Bradyrhizobium* ORS278 strain for their inability to induce nodules on *Aeschynomene* or to fix nitrogen. Results of this screening strategy will also be discussed.

[1] Giraud *et al.* (2007). *Science* 316:1307-1312.