

SALINITY EFFECT ON THE GROWTH OF RHIZOBIA *IN VITRO*

Monica NISTE¹, Roxana VIDICAN¹, Ioan ROTAR¹, Raluca MICLEA¹, Rodica POP¹

e-mail: monikniste@yahoo.com

Abstract

This study aimed to isolate and collect different strains from soil and to characterize their performance against salinity. Two strains *Rhizobium leguminosarum* bv. *trifolii* and two *Sinorhizobium meliloti* strains were used in this study to characterize the growth performance against salinity. Nodules collected from these plants were surface sterilized and a presumptive test for rhizobia was conducted before authentication according to Somasegaran and Hoben (1994). Yeast extract-mannitol medium (YEM), was used for routine cultivation of rhizobia, and when necessary the medium was solidified with 1.2 % agar (YEMA). To test the rhizobial growth at different salt concentrations we supplemented the medium by adding 0, 50, 100, 150 and 300 mM sodium chloride (NaCl). Rhizobial growth after incubation at 28°C with shaking for three days was measured spectrophotometrically at OD₆₀₀ nm. Rhizobial strains were classified by their growth response at 300 mM regarding their optical density (OD). Results showed that the two *Rhizobium leguminosarum* bv. *trifolii* strains tested, about half were able to tolerate up to 300 mM of salt, and the best performance strains were RtR 2. Tolerance of high levels of NaCl varies for *Sinorhizobium meliloti* and all strains showed good salt tolerance efficiency compared with *Rhizobium trifolii*. The best *Sinorhizobium meliloti* strain was SmM 2. The two rhizobia species examined best development has been observed on the *Sinorhizobium meliloti*. At the other species studied in the presence of salt was observed that the number of colony development was adversely affected. These salt tolerant strains are excellent models to study the mechanisms of the resistance and the impact of NaCl on rhizobia tolerance.

Key words: *Rhizobium trifolii*, *Sinorhizobium meliloti*, sodium chloride, tolerance.
