

## EXPRESSION IN *MEDICAGO TRUNCATULA* OF PHASEOLIN MUTATED FORMS WITH DIFFERENT SUBCELLULAR LOCALIZATION

M. ARCHINTI\*, B. BERTONCIN\*\*, E. BARIZZA\*\*, F. LO SCHIAVO\*\*, A. VITALE\*

\*) Istituto di Biologia e Biotecnologia Agraria, Consiglio Nazionale delle Ricerche, Via Bassini 15, 20133 Milano

\*\*\*) Università di Padova, Dipartimento di Biologia, Via Ugo Bassi 58/B, Padova

*Medicago truncatula*, plant transformation, storage proteins

*Medicago truncatula* is a forage legume. It is closely related to the world's major forage legume, alfalfa. Unlike alfalfa, which is a tetraploid, obligate outcrossing species, *M. truncatula* has a simple diploid genome (two sets of eight chromosomes) and can be self-pollinated.

*M. truncatula* has been chosen as a model species for genomic studies in view of its small genome, fast generation time, high transformation efficiency. Tight syntenic relationships have been established between *M. truncatula*, alfalfa, and pea, as well as *Arabidopsis*.

We have developed a method for the transformation and regeneration of *M. Truncatula* transgenic plants, based on *Agrobacterium*-mediated embryogenic callus transformation.

We have thus expressed, under constitutive promoter, three different mutant forms of phaseolin, *Phaseolus vulgaris*' major storage protein. In transgenic tobacco leaves, these proteins are located within different site of the secretory pathway and, consequently, accumulated at very different levels according to the proteolytic activity in their final compartment. We show that in transgenic *M. truncatula* leaves the reporter proteins are all accumulated at high level. The protein patterns observed in protein-blotting experiments suggest that they reach their expected subcellular compartments. Expression and subcellular localization studies are in progress. Our analysis indicates that *M. truncatula* is a good system for the production of heterologous proteins; further studies are required to establish the advantages in the use of this plant as a bioreactor.