SESSION III: PLANT-PARASITE MOLECULAR BIOLOGY & CONTROL STRATEGIES

W3.1 "*In vitro* culture of *Orobanche crenata*"

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ABSTRACT: Orobanche species are serious holoparasitic angiosperm weeds that cause heavy direct damage to many important crops. Thus, *Orobanche crenata* Forsk. is considered an important constraint to legume crops in the Mediterranean area. Successful applications of biotechnology to biotic constraints facing legume crops require both a good biological knowledge of the target species and the mechanisms underlying resistance/tolerance to these stresses. The study of host-orobanche interaction requires the development of an in vitro infection system, free of microorganism contaminations, with full regeneration of the plant parasite. Nevertheless, growing these parasitic plants in vitro is difficult, because of their dependence on a connection to hosts for normal development, and because of their specific germination requirements. An in vitro system has been developed that allows the production of partially differentiated calli of *O. crenata*. This study describes the influence of different plant growth media in association with different plant growth regulators on germination and development in vitro of calli from *O. crenata* seeds. Thus, the effect of giberellic acid on germination of *O. crenata* seeds varied with concentration and type of plant growth media used. These in vitro growth conditions affected also the period of germination and the structure of calli and protrusions produced. These in vitro structures may provide a useful system for studying the molecular steps of the infection whereby *O. crenata* attaches to and penetrates Faba bean root.

BIOGRAPHY: Dr Rachid is of dual Moroccan-Canadian nationality. He did his MBA and PhD in Plant Biotechnology in Canada. He joined INRA in 2006. He works presently as biotechnologist at biotechnology unit, at the Regional Center of Agricultural Research of Rabat one the 10 regional centers of INRA Morocco. He is group leader on food legume research. He is implicated on many international projects. He acts as Institutional PI of Medileg project (Arimnet, FP7). He is also PI of project funded by Rural Development Administration of South Korea. His interest is focused on *in vitro* screening of legumes (Faba bean, lentil, chick pea) for resistance to biotic stresses, and also Improvement of tolerance of legumes to orobanche through the study of molecular plant-pathogen interactions.