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Supervisor's assessment of the thesis «Transgenerational effects of plant biotic Interactions» by Javier Puy

The thesis developed by Javier Puy (in around 4 years time) represents an ambitious and comprehensive experimental approach of biotic interactions effects on transgenerational phenotypic plasticity. The work by Javi, realized under my supervision and the one by other good colleagues (mainly Carlos Carmona and Vit Latzel), was largely done independent, i.e. Javi took the lead in designing important aspects of the experiments, running them and the corresponding analyses of the resulting data. All manuscripts resulting from the thesis reflect important contribution into this field of research and were mostly coordinated and written directly by Javi. One paper has already been published (Chapter 1) in the prestigious journal of Methods in Ecology and Evolution as, originally, part of the master thesis by Hana Dvorakova. Javi was able to update the manuscript with new results from his own experiments and condensate the results and methodological framework in a very efficient way and into a enjoyable manuscript. All other chapters will surely get the proper consideration into journal with sufficiently high impact factor. One of these manuscripts (Chapter 2) includes the results of 3 coordinated experiments which required a very important effort from Javi and several collaborators. This chapter is possibly the best study I had the pleasure to collaborate in and the one with more astonishing and novel results. The different experiments show that plant-plant competition can cause a 'memory' in plant phenotype which affects the competition in future generations and the future effect of plants on important ecosystem functions connected to litter decomposition. The manuscript is now under review in New Phytologist. In the third Chapter Javi collaborated with internationally well-known researchers, from the University of Tartu, working in mycorrhizal symbiosis effects on plan performances. This study expands existing knowledge of the potential for mycorrhizal symbiosis to create transgenerational phenotypic plasticity effects. Javi was able to coordinate this international effort, with a number of research visits abroad, and good communications skills. The study was rather positively reviewed in New Phytologist but it is now being restructured for submission in another journal due to high competition for space in the journal. The final Chapter reports a very dedicated experiment trying to distinguish the effects of intraspecific trait variability due to genetic and transgenerational effects on productivity, i.e. how genetic and transgenerational effects can cause net diversity effects and the corresponding mechanisms. I firmly believe that the thesis by Javi is very good example of a modern experimental thesis, using modern analytical tool to test timely research questions. Javi was able to develop and assemble the thesis autonomously and bringing to the research team good enthusiasm, a great will to learn new ideas and methods and collaborate with others. During the thesis he was, moreover, also able to collaborate into other published manuscripts. As supervisor I definitely consider my self extremely lucky to have had the chance to collaborate with Javi and help developing his research efforts, which will like continue in an exciting research career. It has proved a very enriching experience working with him.

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