IMPLANTEUS
SUSTAINABLE MEDITERRANEAN AGRICULTURE FOR HEALTH | GRADUATE SCHOOL

MAFEN MASTER **Academic Year 2026 - 2027**

Proposal of M1 tutored project

PROJECT TITLE AND SUMMARY:

Priming strategies to enhance tolerance to abiotic stress: current knowledge, future perspectives, and agricultural applications

In this tutored project, you will prepare a mini-literature review focusing on priming strategies that enhance plant tolerance to major abiotic stresses, including thermal, drought, salinity, and UV stress. The objective is to explore how different priming approaches—ranging from physiological and chemical to biological, nano-enabled, mechanical, and light-induced methods—prepare plants to respond more effectively to future stress events. You are expected to search for and critically analyze recent peer-reviewed publications describing thermal, drought, salinity, and UV priming, chemical priming agents such as ABA, SA, JA, and BABA, biopriming using PGPR, arbuscular mycorrhizal fungi (AMF), and endophytes, nano-priming with ZnO, SiO_2, or TiO_2 nanoparticles, mechanical priming through touch or wind, and light-induced priming using UVA, UVC, or blue light. Your review should explain the physiological and molecular mechanisms underlying these priming effects, compare the advantages and limitations of each strategy, and highlight emerging applications in precision agriculture. The mini-review should include a clear introduction to the topic, a structured synthesis of selected studies, a critical discussion comparing different methodological approaches, and a short section outlining future perspectives for applying priming strategies in sustainable crop management.

HOST UNIT: ERIT – PSII (Plant Sciences Interactions and Innovation), IAgES, Avignon University

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