

Synthesis and evaluation of new vanillin derivatives for use in biocontrol on crop plant species (VANIFUN)

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In the context of the valorization of plant biomass for the substitution of fungicides and antibacterial agents, lignin derivatives such as vanillin have gained a lot of interest[1]. In previous studies, molecular compounds synthesized from vanillin by reductive amination have shown antimicrobial activity against contaminants of cosmetic products[2]. In this thesis, these compounds will be studied for their potential antimicrobial effect, as well as their ability to induce a defensive response against crop plant pathogens.

Chemical synthesis of vanillin derivatives using green chemistry conditions will be performed first[3], followed by inhibition tests on phytopathogenic microorganisms affecting wheat and rapeseed. The best molecular candidates, that lead *in vitro* to a strong inhibition of fungal pathogens development without any toxicity to human cells, will be determined. These candidates will then be assessed on plants, *in vitro* on detached plant tissues or *in vivo* on entire plants according to pathogens. A final study will determine the relationship between the molecular structure and its anti-fungal potency.

KEYWORDS: VANILLIN – ANTIFUNGAL – CROP PROTECTION – PHYTOPATHOGENS

REFERENCES

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