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**BOOK OF
ABSTRACTS**

P125 Investigating the efficacy and side effects of a new sustainable fungicide against grapevine downy mildew and powdery mildew

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Downy mildew (caused by *Plasmopara viticola*) and powdery mildew (caused by *Erysiphe necator*) can negatively impact grapevine health and production. Current disease management relies on the use of conventional fungicides, raising concerns about environmental sustainability and potential side effects on non-target microbial communities. This study aimed to evaluate the efficacy of a new sustainable fungicide, based on choline pelargonate (CP), against *P. viticola* and *E. necator* and to assess potential side effects on phyllosphere microorganisms under field conditions. Field trials demonstrated the efficacy of CP against grapevine downy mildew and powdery mildew in two locations in Northern Italy and seasons (2024 and 2025), with particularly high efficacy observed against powdery mildew. Phyllosphere microbial communities were isolated in 2024 from grapevine leaves and bunches of control plants and plants treated with CP or with a strategy of copper and sulfur as reference fungicides. Results showed that the composition of bacterial and fungal communities of grapevine leaves and bunches varied according to vineyard location and phenological stage. Thus, the effect of CP on microbial communities was influenced by vineyard- and season-specific differences in the microbiome composition of the grapevine phyllosphere. This study demonstrated that CP is an effective fungicide to manage grapevine diseases, for further development as an alternative product to conventional fungicides.

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