

ZNANOŠĆU DO INOVACIJA  
za održivi razvoj poljoprivrede i turizma

FROM SCIENCE TO INNOVATION  
For Sustainable Development of Agriculture and Tourism

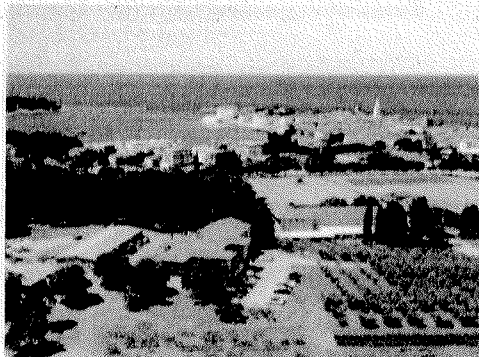
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Znanstveni skup u povodu 150. obljetnice Instituta za poljoprivredu i turizam  
„Znanošću do inovacija za održivi razvoj poljoprivrede i turizma“

Scientific Conference to mark the 150th anniversary of the Institute of Agriculture  
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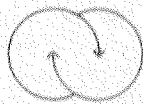
“From Science to Innovation for Sustainable Development of Agriculture and  
Tourism”

# ZBORNIK SAŽETAKA BOOK OF ABSTRACTS



Poreč, 8. i 9. svibnja 2025.

Poreč, 8–9 May, 2025



## Yeasts proteins: studies for sustainable protein stability of white wines

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### Abstract:

Yeast protein extracts (YPEs) are authorized by the OIV for fining purposes with a maximum dosage limit of 60 g/hL for red wines, and 30 g/hL for musts, white and rosé wines. Some authors highlighted that some yeast proteins showed an isoelectric point below wine pH. Given this feature, a possible colloidal interaction between YPEs and positively charged wine proteins is worth exploring.

Qualitative analysis of YPE was carried out by the determination of some colloidal parameters ( $\xi$  potential and electrical charge). The effect of YPE addition at different dosages and times was evaluated considering several analytical parameters: turbidity, protein stability tests, and protein content by HPLC.

Different experiments were carried out in small laboratory volumes and in real cellar conditions on aromatic white wines in two wineries in Croatia. All experiments and analyses were performed in triplicate, and the results were elaborated by one-way ANOVA.

The experimental trials on unstable Malvasia and Graševina wines, performed with different dosages and treatment times, confirmed the effectiveness of YPE, and the results showed a potential reversible interaction with haze-related PR-proteins. The addition of YPE was significant after 4-6 hours, while the effect appeared to diminish with extended exposure times. The best results were obtained in general at 20-30 g/hL of YPE and 4 hours, which induced a significant decrease (40 to 50 %) of initial PR-protein concentration, in particular for chitinase fractions.

The yeast protein extract increased the protein stability of white wines, but it did not allow their complete stabilization. The addition of YPE could be considered a combined treatment with the conventional ones, aimed at decreasing the dose of conventional fining agents (e.g bentonite) and preserving wine aroma. The YPE could represent a new tool for protein stabilization, focused on sustainable and precision enology.

**Keywords:** yeast proteins, white wine, aroma, protein stability, precision enology