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Conference presentation / Izlaganje na skupu

Permanent link / Trajna poveznica: <https://um.nsk.hr/um:nbn:hr:184:451094>

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Download date / Datum preuzimanja: **2024-06-30**



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Influence of cultivar and ripening stage of Croatian olives on endogenous enzyme activity

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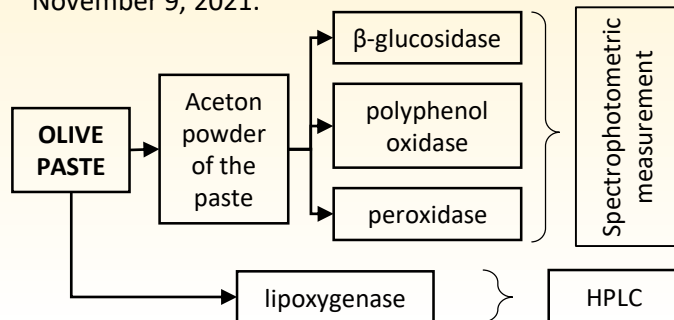
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Aim

The aim of the present study was to determine the influence of fruit ripeness on the endogenous enzyme activity of β -glucosidase, polyphenol oxidase and peroxidase, enzymes responsible for the content and composition of polyphenols in the oil, and lipoxygenase, a key enzyme in the formation of specific sensory properties of virgin olive oil, in four Croatian autochthonous olive cultivars.

Material and methods

Olive fruits from Dalmatian (Oblica and Levantinka) and Istrian cultivars (Rosulja and Istarska bjelica) grown in their area of origin were harvested on three different harvest dates, from October 28 to November 9, 2021.



Results

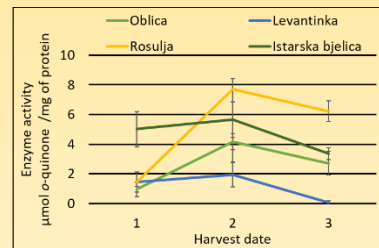


Figure 1 Activity of polyphenol oxidase

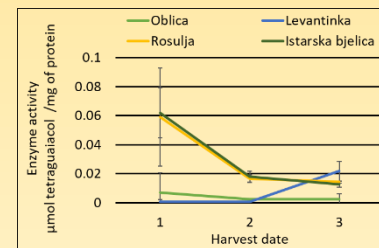


Figure 2 Activity of peroxidase

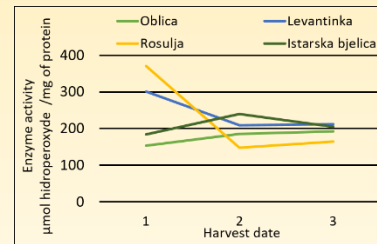


Figure 3 Activity of lipoxygenase

Acknowledgments

This work was supported by Croatian Science Foundation (Influence of innovative technologies on nutritive value, sensory properties and oxidative stability of virgin olive oils from Croatian autochthonous olive varieties - IP-2020-02-7553).

More about the project at



Conclusions

1. The activity of β -glucosidase was detected only in a few samples - insufficient to draw any conclusions.
2. Polyphenol oxidase activity increased between the first and second harvest dates, and then decreased at later harvest date.
3. Peroxidase activity was significantly affected by both ripening and cultivar. Istrian cultivars had significantly higher peroxidase activity. The activity was lower in riper fruits, with the exception of Levantinka, which had the highest activity in ripe fruits.
4. Lipoxygenase activity was influenced primarily by harvest date. On the first date, activity was highest in Rosulja and Levantinka, on the second date in Istarska bjelica, and on the third date in Oblica.