

Phytoalexins Stilbenoids in leaves of *V. vinifera* L. cv. Cabernet Sauvignon as affected by downy mildew (*Plasmopara viticola* Berl.) infection

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Abstract

Statement of the Problem: Incorrect use of pesticides has changed the bio-environment, while their presence in wine is harmful for the human health. Therefore, producing and using ecologically friendly preparations is an internationally topical issue in fighting vine bacterial and fungal diseases. In producing ecologically friendly preparations, worthwhile and important are biologically active substances like the stilbenoids, behaving as phytoalexins. The physiology of vine stilbenoids in relation to the occurrence of some diseases due to bacteria (*Agrobacterium tumefaciens*) and fungi (*Plasmopara viticola*, *Botrytis cinerea*, *Uncinula necator*) have been studied in Georgian red and white grape variety. The purpose of this study is to study the change of leaf stilbenoid concentration of the red grape variety Cabernet Sauvignon under downy mildew infection. **Methodology & Theoretical Orientation:** Samples of healthy and infected leaves were taken from a 35- year-old vineyard, located in the Kakheti region (East Georgia), during July 2019. The total fraction of stilbenoids was isolated by extraction with ethyl acetate, a “Sephadex G25” column was utilized, and the analysis was done by HPLC/MS method. **Findings:** Downy mildew infection affected the stilbenoid leaf concentration as compared to healthy leaves. **Conclusion & Significance:** *Trans*-Resveratrol, *trans-ε*-viniferin and *cis*-piceid were the major detected stilbenoids. *Trans*-Resveratrol concentration was higher in infected leaves while *trans-ε*-viniferin and *cis*-piceid were a little lower in infected leaves, as compared to the healthy ones.

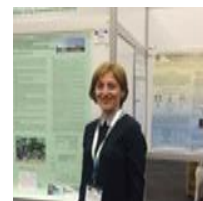


Biography:

Marine Bezhuashvili has working on wine making technologist. She completed master degree-2002. She completed Ph.D. in Agricultural sciences. Her research issue is study of Biologically active stilbenoids in vine and wine. Her participation in many International conferences and publication.

Speaker Publications:

1. Bezhuashvili M, Kharadze Sh, Surguladze M, Shoshiashvili G, Gagunashvili L, Elanidze L, Tskhvedadze L, Vashakidze P (2019) Occurrence of stilbenoids in grapevine under Crown gall infection. *Annals of Agrarian Science* 17 :481-487.
2. Bezhuashvili M,^{1*} Tskhvedadze L¹, Surguladze M¹, Shoshiashvili G¹, Kharadze Sh¹, Gagunashvili L¹, Elanidze L¹, Vashakidze P¹ (2019) Stress-metabolites phytoalexins -stilbenoids of grape skin Rkatsiteli variety (*Vitis vinifera* L.) in condition gray mildew. *EurAsian Journal of BioSciences* 13:1-6.
3. Bezhuashvili M^{1*}, Bavaresco L², Surguladze M¹, Kharadze Sh¹, Shoshiashvili G¹, Gagunashvili L¹, Elanidze L¹, Vashakidze P¹ (2019) Influence of Stilbenoids on *Agrobacterium tumefaciens*. *IIOABJ* 11: 9-12.
4. Bezhuashvili M, Tskhvedadze L, Surguladze M, Shoshiashvili G, Gagunashvili L, Elanidze L, Vashakidze P (2019) Change of Phytoalexin Stilbenoids of Grape Skin Rkatsiteli (*Vitis vinifera* L.) in Condition of Powdery Mildew. *Bioscience Biotechnology Research Communications* 12:146-151.



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