



FACT SHEET

HOW TO MANAGE BOTRYTIS: LACCASE AND GLUCONIC ACID

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Introduction

Botrytis cinerea is a parasitic fungus which can infect grapes that are exposed to cold and wet conditions during ripening. The quantitative level of this infection can be determined by analysing two metabolites of the fungus: laccase and gluconic acid. These two analyses are important tools that can be used to help make decisions regarding fruit quality and subsequent processing options.

Laccase

Laccase is an oxidative enzyme produced by Botrytis cinerea that can cause browning and loss of aroma and flavour. The activity of laccase can be measured by monitoring the impact on a chemical which changes colour when oxidised. However, laccase activity may be underestimated in red wines using this approach.

What do your results mean?

Laccase activity can range from 0 U/mL in uninfected fruit, up to 140 U/mL in fully infected fruit.

Results above 3 U/mL indicate likely impact of laccase activity.

Gluconic Acid

Botrytis cinerea produces the enzyme glucose oxidase, which can oxidise glucose to produce gluconic acid. At elevated levels, gluconic acid can contribute to a sour taste in must and wine.

Vintessential Test Kits can be used to rapidly determine the amount of gluconic acid present in juice and wine with the use of a spectrophotometer.

What do your results mean?

Gluconic acid levels can be up to 0.5 g/L in clean fruit, and up to 5 g/L in fully infected fruit.

Results above 1 g/L indicate the likely presence of Botrytis.

These two analyses allow for rapid estimation of Botrytis activity at the grape receival stage.

Ask us for details of a management strategy specific for your needs

References

Zoecklein, B.W, et al (1995) Wine Analysis and Production, Aspen Publishers New York, 62-67.

Bergmeyer, H.U. et al (1984) Methods of Enzymatic Analysis, 3rd ed., vol. 6, Verlag Chemie, Weinheim, 220-227.

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