Managing *Brettanomyces* Risks by Using Chemical and Microbiological Alternatives

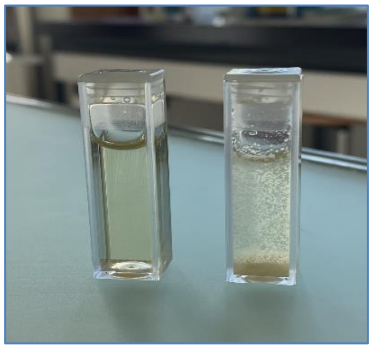
Graduate Melisa Kaya

Objectives

This study investigated strategies for managing *Brettanomyces bruxellensis* risks in winemaking by using microbiological and chemical alternatives to sulfite for wine producers.

Methods | Experiences | Results

In the first part of the study, 47 *B. bruxellensis* strains isolated from various wineries in Switzerland were evaluated for their tolerance to sulfite and chitosan, an alternative to sulfite. For 4 days, optical density values were measured and recorded by UV-Vis spectrophotometer. As a result, 5% of these strains were resistant and 10% were tolerant to both sulfite and chitosan. The aim of the second phase experiment was to evaluate the efficacy of a microbiological alternative. Wines were produced with control yeast and experimental yeast, which was thought to limit the effectiveness of *Brettanomyces*, and then deliberately contaminated with *B. bruxellensis*. After a certain period of time from contamination, samples of the wines were monitored by culture-dependent method and volatile phenol values were measured by HPLC. Wines fermented with experimental yeasts showed a 70% reduction in volatile phenols such as 4-ethylphenol and 4-ethylguaiacol compared to those made with control yeasts. These findings emphasize the critical role of the alternative methods in combating *Brettanomyces* contamination and underline the high potential of microbiological alternatives.



Noticeable difference in population changes of sulfite sensitive (left) and resistant (right) *Brettanomyces* strains.

Growth of two different strains of *Brettanomyces* isolated from the winery by culture-dependant method.

Master Thesis
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Degree programme
Name of the degree programme

Master in Life Sciences - Viticulture and Enology

Field of application
Enology, Wine Microbiology

Supervising professor
Prof Dr Benoît Bach
benoit.bach@changins.ch

Co-supervisor
Prof Dr Doris Rauhut
doris.rauhut@hs-gm.de