



**Student name: Brittany-Ann Germain**

**Thesis title:**

**Effect of microoxygenation on the phenolic and sensory characteristics of Merlot wine:** Determination of the impact of Micro-oxygenation on color, flavor and aroma composition of British Columbia Merlot Wines from 2008 and 2009

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**Abstract (max 300 words)**

**Topic : position and objectives:**

The objective of the study was to determine the influence of micro-oxygenation dosage rates and MOX application with tannin addition on the quality of Merlot wine. Compositional analysis was completed to evaluate the hypotheses: i) oxygenation promotes phenolic condensation reactions, stabilizes wine color, softens mouth feel and improves the aroma and flavor of red wine, ii) when in combination with tannins, MOX promotes better stabilization of color through condensation reactions.

**Methods :**

Merlots wines from the 2008 and 2009 were harvested from the Okanagan Valley of British Columbia (BC). The 2008 wines were exposed to rates of 0, 5, 10, 20 and 60 mL O<sub>2</sub>/L/month. The 2009 vintage was exposed to MOX (20 mL O<sub>2</sub>/L/month) applied with enological tannin addition (20 g/hL). Compositional and sensory analysis were completed to evaluate wine attributes.

**Results :**

The increase in MOX rate resulted in an increase in condensation reactions, "chemical age", color density and intensity and decreases in total phenolics, anthocyanins, flavanols and the condensed tannin content of the Merlot wines.

Sensory analysis revealed that higher rates of MOX produced changes in aroma, mouth feel and color through improvements in fruity aroma and decreases in astringency.

When enological tannins were added with MOX, contents of total phenolics, total anthocyanins, tartaric esters and flavonols were higher. MOX plus tannin produced fewer condensed tannins, lower color hue and "chemical age".

Sensory analysis revealed that MOX plus tannin addition produced perceivable differences in aroma and visual characteristics.

**Main conclusions:**

Micro-oxygenation offers winemakers the ability to influence the phenolic composition and sensory characteristics of a red wine. The manipulation of the dosage rate of MOX as well as the addition of tannins to wine in combination with MOX produced changes in color stability, aroma and mouth feel of the Merlot wine.

**Keywords (5)** : Micro-oxygenation, tannin addition, phenolics, Merlot, British Columbia

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