

## Experimental Study for Examination of Nature of Diffusion Process during Wine Microoxygenation

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**Abstract :** This study was done for the characterization of polyphenols changes of anthocyanins, flavonoids, the color intensity and total polyphenols index, maturity and oxidation index during the process of micro-oxygenation of wine that comes from a specific geographic area in the southeastern region of the country. Also, through mathematical modeling of the oxygen distribution within solution of wort for wine fermentation, was shown the strong impact of carbon dioxide present in the liquor. Analytical results show periodic increases of color intensity and tonality, reduction level of free anthocyanins and flavonoids free because of polycondensation reactions between tannins and anthocyanins, increased total polyphenols index and decrease the ratio between the flavonoids and anthocyanins offering a red stabilize wine proved by sensory degustation tasting for color intensity, tonality, body, tannic perception, taste and remained back taste which comes by specific area associated with environmental indications. Micro-oxygenation of wine is a wine-making technique, which consists in the addition of small and controlled amounts of oxygen in the different stages of wine production but more efficiently after end of alcoholic fermentation. The objectives of the process include improved mouth feel (body and texture), color enhanced stability, increased oxidative stability, and decreased vegetative aroma during polyphenols changes process. A very important factor is polyphenolics organic grape composition strongly associated with the environment geographical specifics area in which it is grown the grape.

**Keywords :** micro oxygenation, polyphenols, environment, wine stability, diffusion modeling

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