

INDEX

INTRODUCTION	17
1. Chemical composition of grape must	19
2. Winemaking process	23
3. Main metabolites in wine	26
4. Genus <i>Saccharomyces</i> in winemaking	29
5. Wine aroma	33
5.1. <i>Primary or varietal</i> aroma	34
5.1.1. <i>Glycosidic precursors</i>	36
5.2. <i>Secondary or fermentative</i> aroma	41
5.2.1. <i>Higher alcohols</i>	41
5.2.2. <i>Acetate esters</i>	45
5.2.3. <i>Ethyl esters</i>	47
5.3. <i>Tertiary</i> aroma or “bouquet”	51
6. Expression analysis of genes involved in aroma production.....	52
BACKGROUND & JUSTIFICATION	55
References	59

OBJECTIVES	81
<u>OBJECTIVE 1.</u> Analysis of varietal aroma release from glycosilated precursors by different <i>Saccharomyces</i> species and hybrids.	
Chapter 1. Effect of aromatic precursor addition to wine fermentations carried out with different <i>Saccharomyces</i> species and their hybrids	87
<u>OBJECTIVE 2.</u> Analysis of monoterpene alcohols profile in wine by the different <i>Saccharomyces</i> species and hybrids; β -D-glucosidase activity and terpene bioconversion.	
Chapter 1. Monoterpene alcohols release and bioconversion by <i>Saccharomyces</i> species and hybrids	135
<u>OBJECTIVE 3.</u> Study of secondary aroma production in wine by different cryotolerant <i>Saccharomyces</i> species and hybrid strains.	
Chapter 1. Oenological characterization of cryotolerant <i>Saccharomyces</i> species and hybrids at low and moderate fermentation temperatures	165
<u>OBJECTIVE 4.</u> Expression analysis of genes related with secondary aroma production by DNA microarrays: parental species versus hybrid strains.	
Chapter 1. Correlation between wine aroma profile and gene expression in different <i>Saccharomyces</i> species	197
Chapter 2. Correlation between wine aroma profile and gene expression in two hybrids between <i>Saccharomyces cerevisiae</i> and <i>S. kudriavzevii</i>	237
SUMMARIZED RESULTS	275
GENERAL DISCUSSION	283
CONCLUSIONS	297