

RELATÓRIO FINAL DE PRESTAÇÃO DE CONTAS

Título do Projeto: Acordo de Cooperação Vinhética Indústria e Comércio de Alimentos Ltda.

Diretor Campus Dom Pedrito: Prof. Dr. Thiago Antônio Beuron

Coordenador: Prof. Dr. Marcos Gabbardo

Coordenador do Curso Enologia-Bacharelado: Prof. Dr. Rafael Lizandro Schumacher

Campus: Dom Pedrito

Acordo de Cooperação/ Convênio nº: 02/2014

Período de Execução: Início: 21/05/2014 Término: 20/05/2019

RESULTADOS

Atividades desenvolvidas:

No decorrer da execução desse Acordo de Colaboração foram executadas:

- a) Vinificação em escala semi-industrial na Vinícola Experimental da Unipampa, realizada pelos alunos do Bacharelado em Enologia sob supervisão dos professores, equipe técnica da Vinícola Guatambu e Vinhética, conforme os termos firmados no Acordo de Colaboração firmado entre a UNIPAMPA e a empresa Vinhética Ind. E Com. De Alimentos LTDA (processo nº 23100.000228/2014-81),
- b) o processo de vinificação realizada pelos alunos continha os itens: recepção e avaliação das uvas, desengace, esmagamento, fermentação alcoólica, descube (retirada da parte sólida – cascas e sementes) e desborre (retirada de borras grossas formadas durante o processo de fermentação). Os equipamentos utilizados para os processos são da Universidade Federal do Pampa (desengaçadeira, esteira de seleção e tanques de aço inoxidável) e permanecem até o dia de hoje (junho/2020) em perfeito funcionamento na Vinícola Experimental da Unipampa/Campus Dom Pedrito,
- c) não houveram para a Universidade Federal do Pampa despesas referentes ao processo de vinificação realizado, também não houve qualquer repasse financeiro entre as partes durante a execução desse Acordo de Colaboração, tão somente, conforme firmado anteriormente, a empresa Vinhética forneceu as uvas (um total de aproximadamente 3 toneladas), e insumos necessários para a produção,
- d) moção dos vinhos elaborados na Vinícola Experimental da Unipampa para à Vinícola Guatambu, responsável técnica pela elaboração dos vinhos,
- e) acompanhamento dos demais processos de elaboração dos vinhos por alunos da



- UNIPAMPA dentro das instalações da Vinícola Guatambu (demais processos incluíram: análises físico-químicas, tratamentos de temperatura, adição de insumos, filtrações e envase),
- f) produção intelectual com base na pesquisa realizada durante o projeto de cooperação técnica (pesquisa que incluiu avaliação de insumos, intitulada "Influência de diferentes aplicações de insumos em vinhos tintos das cultivares Marselan Merlot e Tannat produzidos na região da Campanha"),
 - g) retirada de amostras dos vinhos para avaliação e atividades diversas dentro da Universidade Federal do Pampa (avaliação incluiu: análises físico-químicas e análise sensorial, atividades diversas incluíram aulas práticas de degustação), e
 - h) publicação e participação em Congresso Internacional com os resultados obtidos pela pesquisa realizada durante o projeto de cooperação técnica.

Quantificação da produção intelectual

Trabalho Acadêmico de Conclusão de Curso, publicado em 2015 *conforme anexo	1
Poster publicado no 37º World Congress of Vine and Wine, novembro de 2014. Mendoza, Argentina *conforme anexo	2

2) IMPACTO DAS AÇÕES E RESULTADOS OBTIDOS

Número e descrição da população beneficiada:

Graças a esse acordo de cooperação técnica foi possível o acesso da turma de Práticas Enológicas do curso Bacharelado em Enologia, somando um total de aproximadamente 22 alunos na época, à realidade de uma produção em escala semi-industrial, e não apenas microvinificações, como normalmente acontece no ambiente acadêmico, enriquecendo a experiência técnica desses alunos. Também a turma de Análise Sensorial III, com um total de aproximadamente 15 alunos na época foi beneficiada através do estudo de vinhos com diferentes adições de insumos e seu impacto sensorial.

Também foi possível atender à comunidade civil externa à Universidade, nas pessoas das equipes técnicas das empresas Guatambu e Vinhética, que puderam participar das discussões acadêmicas em torno da eficácia do uso de insumos para maturação de vinhos tintos, enriquecendo o conhecimento dessas pessoas e a qualidade dos produtos desenvolvidos nas empresas.

Comparação das metas propostas e dos resultados alcançados:

Consideramos que as metas iniciais, de proporcionar aos alunos uma experiência próxima da realidade industrial que a profissão apresenta, foi plenamente satisfeita. Assim como a meta de promover o diálogo entre iniciativa privada e suas equipes técnicas, e nossos alunos, possibilitando para os últimos contatos profissionais da área.

Para além das metas iniciais foi possível também a divulgação da produção intelectual realizada dentro da Universidade Federal do Pampa no congresso mais importante do setor vitivinícola mundial, o Congresso da OIV, com a publicação de 2 posters.



Justificativa dos resultados não alcançados:

Consideramos que todas as metas propostas foram passíveis de serem alcançadas.

3) AVALIAÇÃO DAS AÇÕES REALIZADAS

Avaliação do Coordenador da Ação:

Vejo que a experiência de cooperação técnica foi benéfica a todos os envolvidos proporcionando diálogo entre a comunidade acadêmica e a cadeia produtiva da uva e do vinho da região da Campanha Gaúcha, impactando tanto no enriquecimento da formação dos alunos quanto trazendo informações novas de tecnologia para os produtores de vinhos da região.

Avaliação dos participantes da Ação:

Equipes técnicas Vinhética e Guatambu: Após as vinificações e a realização de degustação dos vinhos elaborados o retorno foi de que a experiência foi muito instrutiva e interessantes os resultados, influenciando as tomadas de decisão da produção das empresas com base na pesquisa realizada.

Esther Theisen Gabbardo (agora egressa do Curso de Enologia, aluna voluntária no projeto): Esse Acordo de Cooperação técnica foi importante para que eu pudesse entender as peculiaridades de uma produção de escala industrial (maior volume de produção), as dificuldades encontradas e as diferenças do que normalmente acontece nas microvinificações.

Também pude perceber a influência dos insumos na maturação de vinhos tintos, conforme foi publicado em meu Trabalho de Conclusão de Curso e posters, onde barricas de carvalho e chips de carvalho podem diminuir o caracter herbáceo do aroma dos vinhos quando as uvas não alcançam boa maturação, e melhoria das características gustativas. O que é um conhecimento muito valioso para os produtores de vinhos da Região que muitas vezes sofrem com intempéries climáticas e isso reflete na qualidade dos vinhos. Essa pesquisa mostrou que utilizando barricas de carvalho é possível alcançar vinhos de qualidade superior mesmo a partir de uvas que não estejam excelentes.

A participação no maior e mais importante congresso da área de enologia também foi uma experiência marcante e à qual sou grata pela Universidade Federal do Pampa me proporcionar, pois pude apresentar o trabalho resultante da pesquisa realizada dentro desse Acordo de Cooperação, mas também conheci pesquisadores e professores de diferentes partes do mundo e que são grandes referências da ciência e tecnologia de uva e vinho.

Finalmente, também através desse acordo fiz contatos dentro da Vinícola Guatambu, onde pude realizar meu estágio de conclusão do curso, e permaneci no corpo técnico por 3 anos, chegando ao cargo de Gerente de Produção.

4) QUANTITATIVO TOTAL DE ENVOLVIDOS NA ORGANIZAÇÃO DA AÇÃO:

Professores da UNIPAMPA: 1

Técnico-administrativos da UNIPAMPA: 2

Alunos da UNIPAMPA: **37 (aulas práticas de vinificação e análise sensorial)**

Comunidade Externa: **2 (representantes equipe técnica Vinícola Guatambu e Vinhética)**



Bolsistas: 0

Alunos Voluntários: 2 (projeto de pesquisa)
5) ANEXOS

TCC PUBLICADO:

ESTHER HEISEN GABBARDO

INFLUÊNCIA DE DIFERENTES APLICAÇÕES DE TANINOS E MISTURAS
DE TANNOS E CATEQUINAS NA MANTENÇÃO DE TANNOS E PRODUTOS NA
REGIÃO DA CAMPANHA

Trabalho de Conclusão de Curso apresentado ao
Curso de Engenharia de Alimentos da Universidade
Federal de Lavras, Lavras, Minas Gerais, em 2014.

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Prof. Dr. Alexandre Soares de Sá
Orientador

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Anais do 37º World Congress of Vine and Wine:

Poster n° **12043**: IMPROVED QUALITY OF MERLOT WINE WITH DIFFERENT MATURATION

2014-431 : Esther Theisen, Marcos Gabbardo, Iuri Rosso : UNIPAMPA - Campus Dom Pedrito, Brazil, iuri.rosso@hotmai.com

The Region of Campanha Gaucha see your horizon change with the expansion of viticulture and implementation of industrial projects aimed at producing wine. Currently technological alternatives are sought to increase quality, and the good results in the region attract new investors to the sector. One of the more important cultivars produced in Campanha and other producing regions of Brazil is Merlot, with a production of 10,179,781 kg of grape harvest in 2013, behind only the production of Cabernet Sauvignon. The success is due to the characteristic of the wine that ticks the taste buds of the Brazilian consumer, being balance and less aggressive tannins. In view of this fact the aim of this study was to evaluate the application of different inputs in the maturation of red wine Merlot produced in the Campanha Gaucha in order to achieve



Book of abstracts : 377

Poster n° **12044**: DIFFERENT MATURATION IN RED WINE MARSELAN OF THE CAMPANHA GAUCHA

2014-432 : Esther Theisen, Marcos Gabbardo, Iuri Rosso : UNIPAMPA - Campus Dom Pedrito, Brazil, iuri.rosso@hotmai.com

The Brazilian wine undergoes major transformations that result in the increase of their quality, the development of less consecrated cultivars, but with great potential, investments in new production regions, and use of new manufacturing techniques are examples of important industry initiatives in the consecration of the wine industry Brazilian. As is the case with promising region of the Campanha Gaucha, which sees its skyline change with the expansion of viticulture and implementation of industrial projects aimed at producing wine. An example of the innovations that have succeeded and are great stakes in Brazilian production is the cultivar Marselan, which in 2012 had a record crop production of 345,504 kg of grapes, a significant increase over 2005 (28,868kg) and wines classified into technical contests importance in the industry, representing a good alternative in a growing region that is still seeking differentiation in the market, as the Campanha Gaucha. In view of this fact the aim of this study was to evaluate the application of different inputs in the maturation of red wine cultivar Marselan produced in the Campanha Gaucha region. Work with semi industrial bias, was developed in the Experimental Winery, UNIPAMPA Campus Dom Pedrito in partnership with local investors and analyzed the impact of treatments on polyphenol array of wines after the maturation period. Treatments were applied after descube wines, being divided into: (T1) without added inputs (T2) addition of grape tannin dose 15g/hL, (T3) addition of tannin oak 15g/hL dose (T4) addition of tannin mix (grape + oak) 15g/hL dose (T5) addition of French oak chip average browning 2g / L (T6) French oak barrels of first use and (T7) American oak barrels first use, being fractionated treatments with inputs (tannins and chips) in glass bottles of 20 liters. One month after implantation of the experiment physicochemical analyzes were performed in triplicate by the equipment WineScanSQ2 Foss, reading Fourier transform infrared (FTIR). The treatments were subjected to analysis of variance, and the finding of significant differences, the means were compared by Tukey test at 5%. It can be observed that treatment T4, tannin mix (grape + oak) showed a significant difference compared to other treatments in parameters total phenol index and total tannins, indicating a correlation between these, the lowest values were found in T6, barricading T7 and French oak, American oak barrels, and T3, oak tannin, which also showed no significant difference. In T1, with no added ingredients, so far it can be considered that the treatment with tannin mix maturation of red wines may represent an increase in quality and structural improvement of the same. However, it is important to emphasize the short treatment period until the completion of the physicochemical analysis, pointing out the need for extension of this research, assessing the impact on the sensory profile and stability of polyphenolic matrix performing a prediction of potential keep the wines in different treatments.

Poster's publicados:

Effect of different maceration treatments on red wine from Campanha Gaúcha

WCPA

Esther Theisen¹, Marcos Gabbardo¹, Iuri de Rosso¹

UNIPAMA Bacharelado em Enologia

ABSTRACT

The aim of this study was to evaluate the effect of different maceration treatments on the quality of red wine from Campanha Gaúcha. The study was conducted in a semi-arid region of the Campanha Gaúcha, Brazil. The grapes were harvested at the peak of maturity and then the degree of maturity was determined. The grapes were then subjected to different maceration treatments: control (C), 12 h (T1), 24 h (T2), 48 h (T3), 72 h (T4), 96 h (T5), 120 h (T6), and 144 h (T7). The wines were then analyzed for total phenolics, total tannins, and color intensity and color tone. The results showed that the maceration treatments significantly affected the quality of the wine. The wines obtained from the 120 h and 144 h treatments showed higher total phenolics and total tannins, and higher color intensity and color tone. The 120 h treatment showed the best results for all parameters.

INTRODUCTION

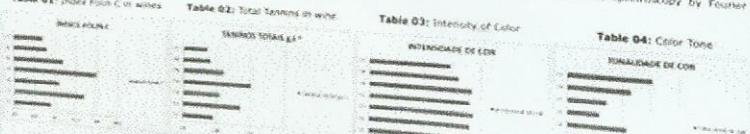
Quality of the wine is a complex phenomenon that involves many factors. One of the most important factors is the maceration process. The maceration process is the period during which the grapes are in contact with the juice. This process is essential for the extraction of the phenolic compounds and the color of the wine. The maceration process can be controlled by several factors, such as the temperature, the time, and the use of maceration aids. The aim of this study was to evaluate the effect of different maceration treatments on the quality of red wine from Campanha Gaúcha. The study was conducted in a semi-arid region of the Campanha Gaúcha, Brazil. The grapes were harvested at the peak of maturity and then the degree of maturity was determined. The grapes were then subjected to different maceration treatments: control (C), 12 h (T1), 24 h (T2), 48 h (T3), 72 h (T4), 96 h (T5), 120 h (T6), and 144 h (T7). The wines were then analyzed for total phenolics, total tannins, and color intensity and color tone. The results showed that the maceration treatments significantly affected the quality of the wine. The wines obtained from the 120 h and 144 h treatments showed higher total phenolics and total tannins, and higher color intensity and color tone. The 120 h treatment showed the best results for all parameters.

MATERIAL AND METHODS

The grapes were obtained through manual harvesting of 10 tons of 'Merlot' vineyard installed in the Campanha Gaúcha, conducted in a semi-arid region, with an average yield of 12 tonnes per ha. The grape was referred to the Experimental Winery of the Federal University of Pampa, where it was initially weighed and then the degree of maturity will be determined. Then, the grapes were sorted and added 75 mg/kg of sodium metabisulfite, and then go to the individual fermenters tanks 2000 liters, and added 5 g/l of potassium metabisulfite. Fermentation was conducted at a controlled temperature of 18°C to 22°C, the yeast *Saccharomyces cerevisiae* was used (Lafort 100). Along with water in tub was added to the nutrient system, beginning of fermentation. Soon after the alcoholic fermentation, malolactic fermentation was allowed. After reaching the end of malolactic fermentation, the wine samples were separated into smaller tanks of 20 liters, to apply the treatments described below. The treatments were: (1) control; (2) addition of tannin; (3) addition of tannin and oak chips; (4) addition of tannin and oak chips; (5) addition of tannin and oak chips; (6) addition of tannin and oak chips; (7) addition of tannin and oak chips. The wines were then analyzed for total phenolics, total tannins, and color intensity and color tone.

RESULTS AND DISCUSSION

The results presented here are a preliminary, and should consider the short time of contact with the treatments. Will only present the physicochemical aspects of the wine that were analyzed with specific equipment, which uses the method of infrared spectroscopy by Fourier transform.



Studies aimed at understanding the complex chemical changes that occur during maturation of a wine show the importance of this moment, that directly modifies the physicochemical and sensory profile of the product. The use of inputs and maceration aids at this stage is also widely explored in industry, and allows the gain in quality of products, but still lacking subsidies to producers in relation to the performance of these alternatives and that, in fact, change their products. Using the insight various possibilities discussed the work and shows that the analysis of extension over a longer period will bring better results. However, preliminary results show that the use of grape tannins, or mix grape and oak tannins as maceration aids, enrichment of polyphenolic array of wines, using larger amount of phenolic compounds, antioxidant stability and strength of greater red coloration of wines.

ACKNOWLEDGMENTS: The authors thank the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the financial support.



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Impact on quality of wine 'Merlot' with different tannin maturation



Estilher: Travençolo, Marcox Gabbardo, Jurilde Rocco

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ABSTRACT

The purpose of this study was to evaluate the impact of different tannin maturation treatments on the quality of Merlot wine. The treatments were: (T1) without tannin, (T2) grape seed dose 15 g/L, (T3) oak tannin dose 15 g/L, (T4) grape seed + oak dose 15 g/L, (T5) French oak dose 15 g/L, (T6) French oak dose 30 g/L. After two months physicochemical analysis was performed using specific equipment by reading infrared spectra. The treatments were subjected to analysis of variance and means were compared by Tukey test at 5%. The T5 treatment differed from the others with the highest levels in the parameters Folin-C index and Total Tannins, Color Intensity and Color Tone. The lowest values were found in these parameters in the treatment T1 that was below even the T1 treatment with different tannin maturation of wines. Merlot are mentioned as an interesting alternative. The conclusion must perform an extension study evaluating its sensory profile and stability of polyphenolic matrix, making a prediction of the potential to keep the wines in different treatments.

1. INTRODUCTION

Wine is a product of the fermentation of grape juice. The quality of wine is determined by the combination of several factors, such as the grape variety, the climate, the soil, and the winemaking process. Tannins are natural compounds found in grape seeds and skins, which contribute to the structure, stability, and color of wine. The use of different tannin maturation treatments can influence the sensory profile and stability of the wine. This study aims to evaluate the impact of different tannin maturation treatments on the quality of Merlot wine.

MATERIAL AND METHODS

Was chosen for this study, a Merlot wine from the region of the 'Campanha Gaúcha', this region is one of the new centers of wine production in Brazil. The wine was made from a standard protocol used in the Experimental Winery of the Federal University of Pampa, located in Dom Pedrito.

Figure 01: Protocol Winemaking

PROTOCOL WINEMAKING	
1	Grape reception
2	Stemming and Crushing
3	Start of Alcoholic Fermentation
4	Start of malolactic Fermentation
Application of Treatments	

The treatments were chosen for their wide application in practice and the similar studies which analyze the beneficial use of these materials, but they are used mainly by new growers, such as comparing the impact of each of the strategies during maturation of wine.

Table 01: Seed Treatments

Treatment	Dose	Volume of Tannin
T1	0 g/L	0 L
T2	15 g/L	0.15 L
T3	15 g/L	0.15 L
T4	15 g/L	0.15 L
T5	15 g/L	0.15 L
T6	30 g/L	0.30 L

RESULTS AND DISCUSSION

The results presented here are a preliminary, and should consider the short time of contact with the treatments. We only present the physicochemical aspects of the wines that were analyzed with specific equipment, which uses the method of infrared spectroscopy by Fourier transform.

Table 02: Index Folin C in wines



Table 03: Total Tannins in wine

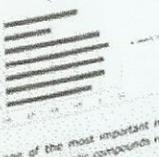


Table 04: Intensity of Color

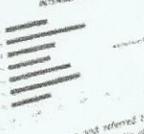
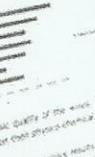


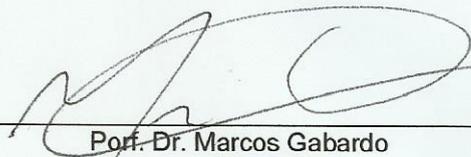
Table 05: Color Tone



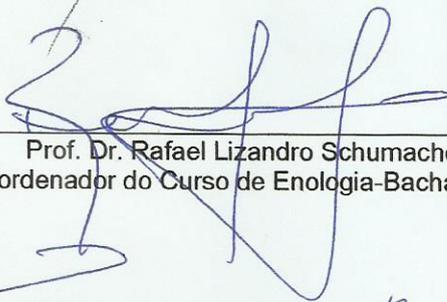
The maturation of red wines is one of the most important moments in the decision and referred to the organic quality of the wine. The performance of time and technology on the phenolic compounds represent major changes in the profile of the wines of each previous chemical and sensory characteristics. The alternatives presented in this work became interesting options. Although the time of processing is still short, and the previous results, we already observe that the use of Grape Tannin in maximum recommended doses (30g/L), represents the best results obtained with in amounts of Total Tannins and Index Folin C, good color intensity, and better red color tone. It may be recommended a continuation of the studies and evaluation of the sensory profile of wines, to confirm the



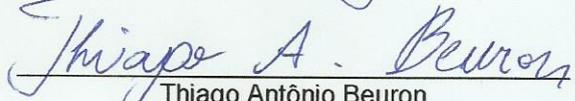
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