

微孔膜在红葡萄酒过滤澄清中的应用研究

Clarification of red wine by cross microflow filtration

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中文摘要:

研究了微孔膜过滤(CMF)系统在红葡萄酒过滤澄清工艺中的适用性。实验采用德国制造的微孔滤膜,测定了过滤膜的工作曲线、比较了不同清洗方式对膜通量的影响,以及过滤前后红葡萄酒主要理化、感官品质变化,以此确定CMF在红葡萄酒过滤澄清中的性能。实验发现:1)CMF过滤下胶后和冷冻后葡萄酒,流量衰减缓慢,表现出良好的过滤性能;2)经过2% NaOH热碱液(55~60℃)清洗20 min后过滤流量恢复良好,显著改善了过滤中期膜的性能;3)过滤初期进行流量(压力)调节有利于CMF良好过滤性能的保持,CMF过滤下胶后和冷冻后红葡萄酒的初期流量分别为50和66.6 L/(h·m²)为宜;4)经过CMF过滤后,提高了葡萄酒的品质和稳定性,除还原糖、总SO₂和游离SO₂等指标稍有降低外,其它主要理化指标变化很小,感官分析发现在香气保留方面优于硅藻土过滤。本实验结果为微孔膜过滤应用于红葡萄酒澄清提供了依据和基础工艺参数。

英文摘要:

Applicability of Cross Microflow Filtration (CMF, made in Germany) for red wine clarification was studied through monitoring efficiency curve of filtration, detecting the effects of different cleaning methods on recovery efficiency of filtration membrane and comparing the quality of red wine before and after the filtration. The results showed that CMF could keep its filtration flux at a high level for a long time not only for cold stabilized wine but also for fined wine. For keeping high filtration capability, the initial pressure should keep below 50 L/(h·m²) for fined wine and 66.6 L/(h·m²) for cold stabilized wine. The filtration capacity of used CMF could be recovered by cleaning with 2% NaOH (55~60℃) for 20 minutes. Furthermore, the application of CMF improved the wine stability and quality, and showed no obvious influence on its physical and chemical characteristics except a slight decrease on the content of reducing sugar and SO₂. By sensory evaluation, CMF was found better than kieselguhr filtration on wine quality, such as aroma. The experimental results proved that CMF was a fit approach to red wine clarification.

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