The Phenolic Potential of Wines from French Grape Varieties Cabernet Sauvignon, Merlot and Syrah Cultivated in the Region of Thessaloniki (Northern Greece) and Its Evolution during Aging

Konstantina Stavridou¹, Evangelos H. Soufleros¹, Elisavet Bouloumpasi¹,², Vagia Dagkli¹

¹Department of Food Science & Technology, Faculty of Agronomy, Aristotle University of Thessaloniki, Thessaloniki, Greece
²Department of Oenology and Beverage Technology, Eastern Macedonia and Thrace Institute of Technology, Thessaloniki, Greece

Email: esoufler@agro.auth.gr

Received 12 December 2015; accepted 26 February 2016; published 29 February 2016

Copyright © 2016 by authors and Scientific Research Publishing Inc.
This work is licensed under the Creative Commons Attribution International License (CC BY).
http://creativecommons.org/licenses/by/4.0/

Abstract

The aim of this work is mainly to determine the effect of the pedoclimatic conditions ("terroir") on the phenolic composition of wine originated from three French red grape varieties Cabernet Sauvignon, Merlot and Syrah, cultivated in the region of Thessaloniki (Northern Greece); simultaneously a study of its evolution during aging in a stainless steel tank, in oak barrels of different origin and in bottles is conducted. Additionally, in this work, we try to compare the evolution of phenolic composition of wines during aging in French medium toast oak barrel and in American heavy toast oak barrel. For this reason, 20 red wine samples originated from this area were analyzed. The color markers were measured by UV-spectrometry, while the phenolic acids and catechin content of the wine samples and their evolution during aging were determine by UVis-High performance liquid chromatography. Significant differences detected among the three grape varieties regarding color parameters, total anthocyanins and some phenolic acids. The increase of the extraction time during vinification affected the amounts of phenolic acids, catechin, total phenolic index (TPI) and tannin content. Gallic acid and catechin were the most abundant phenolic compounds and their amounts, as well as the concentrations of several phenolic acids were significantly affected during the storage period. Finally, the phenolic composition and the amounts of phenolic acids did not appear to be affected by the origin of oak barrels.