Ochratoxin A Contents in Wine: Comparison of Organically and Conventionally Produced Products

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Abstract

Ochratoxin A (OTA) content was determined in 44 organically and conventionally produced wines originating from different geographical regions. Wine samples were extracted using a series of C_{18} and mixed-bed solid-phase cartridges and analyzed by HPLC with fluorescence detection. The identity of the mycotoxin was confirmed using liquid chromatography−tandem mass spectrometry. Recoveries were in excess of 90%, intraday precisions were better than 6%, and the interday variation was 15%. Limit of detection was 0.05 μg/L (HPLC). All sampled wines contained OTA below the level permitted by the European Union of 2 μg/L, ranging from not detectable (nd) to 0.75 μg/L for red wines (n = 26), from nd to 0.092 μg/L for rosé wines (n = 2), and from nd to 0.22 μg/L for white wines (n = 16). The concentration of OTA in organically produced wines (nd to 0.72 μg/L, median 0.092 μg/L, n = 19) was not significantly different from that in conventional products (nd to 0.75 μg/L, median 0.066 μg/L, n = 25) as assessed by a Mann−Whitney statistical test (p = 0.54).

Keywords: Mycotoxins; food safety; food quality; organically produced foods; naturally occurring toxicants; biocontaminants