

Accepted Manuscript

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PII: S0308-8146(18)30331-5
DOI: <https://doi.org/10.1016/j.foodchem.2018.02.094>
Reference: FOCH 22478

To appear in: *Food Chemistry*

Received Date: 24 October 2017
Revised Date: 9 February 2018
Accepted Date: 17 February 2018

Please cite this article as: Siebert, T.E., Barker, A., Barter, S.R., de Barros Lopes, M.A., Herderich, M.J., Francis, I.L., Analysis, potency and occurrence of (Z)-6-dodeceno- γ -lactone in white wine, *Food Chemistry* (2018), doi: <https://doi.org/10.1016/j.foodchem.2018.02.094>

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Analysis, potency and occurrence of (Z)-6-dodeceno- γ -lactone in white wine

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Abstract

(Z)-6-Dodeceno- γ -lactone is a potent aroma compound that has been little studied and its prevalence in wines is unknown. An efficient stable isotope dilution assay was developed using a simple, direct immersion solid-phase microextraction and gas chromatography–tandem mass spectrometry method suitable for routine use with a low ng/L limit of quantitation. Using this method, 99 out of 104 young white wines analysed were found to contain detectable (Z)-6-dodeceno- γ -lactone. The highest concentrations were found in Riesling and Viognier wines.

(Z)-6-Dodeceno- γ -lactone was found to have an aroma detection threshold of 700 ng/L in a neutral white wine. This study established that (Z)-6-dodeceno- γ -lactone is widely present in Australia's most popular white wine varieties, but generally at concentrations below its aroma detection threshold.

KEYWORDS: GC-MS/MS; wine; (Z)-6-dodeceno- γ -lactone; (Z)-dairy lactone; aroma; analysis

Chemical compounds studied in this article

(Z)-6-Dodeceno- γ -lactone (PubChem CID: 5352428)

1. Introduction

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