

Interactive comment on “Performance of SIFT-MS and PTR-MS in the measurement of volatile organic compounds at different humidities” by Ann-Sophie Lehnert et al.

Anonymous Referee #3

Received and published: 8 May 2020

This paper provides some interesting original research into the detection of adulteration of Olive Oils. It should be published but a significant revision is needed before this can be achieved as there are a number of issues that require clarification.

I would ask the author to consider the following points:

- 1) The entire paper needs a revision by a fluent English speaker. There are too many changes that are required to mention but I have added a few in my comments.
- 2) There should be one place or alternatively a first mention in the paper where the following abbreviations are defined: PLSR (Partial Least Squares Regression Introduction and P2, L47); SIM (Selected Ion Mode) P5 L175; SPSS L132, P6; LOX (? P5 L175)

Lipoxygenase, P7 L164); ICD (Interclass Distances (P7, L175). Some of the abbreviations are defined by the author in the text eg SECV P8, L192 but it might be simpler to have a single list of abbreviations together.

3) On P5, a description of the technique and methodology is outlined and a list of rate coefficients used for the analyses is given in Table 2. It is important to state what the bath gas used for the measurements is, as many of the concentrations of volatiles are derived from NO⁺ which undergoes association reactions. The rate coefficients for association are very different for a He bath gas than for a N₂ bath gas.

4) Is a reference required in L130 for Tukey?

5) On P6, Line 151 with reference to Table 2. A more detailed description in the Table footnote as to the meaning of the letters would help.

6) The statistical results summarised in Table 4 need further explanation.

7) Figure 2 did not print.

8) Fig 3 is distorted and needs attention.

Some possible improvements to the written explanations and accounts follow:

Highlights

SIFT-MS can be used to detect adulteration in EVCOO as a rapid and simple analytical technique P2 L35 oils. . .

L37 . . .EVOO has become.adulterated foods. . . The most widely used. . .

L43 . . .study focused on the measurement of volatile composition..

L48 adulteration levels were clearly evident in most samples.

P3L62information sources dating back to the ancient Romans. . . .related to olive oil

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L64-68may not necessarily result in a food security problem, but it does result in substitution of a more valuable product with a cheaper and lower quality option. When this substitution occurs, the food industry might face decreased market acceptance, increased costs due to... damaged brand and or bankruptcy amounting to billions...

P3 L62information sources dating back to ancient Romans... incidents related to olive oil...

L64 ... Adulteration may not necessarily result in a food security problem, but it does result in substitution of a more valuable product with a cheaper and lower quality option.

L66-68When this substitution occurs, the food industry might face a decreased market acceptance, increased costs due to recall, damaged brand and or bankruptcy amounting to billions of dollars...

L76 ...Frankel,2010). However, the presence of minor components in olive oil have an important role to distinguish well-known sensorial characteristics (Morales...

P4 L83 ... of them include isolation....

L90 ...real-time monitoring....

L102 Several extra virgin.....(EVOO) samples were collected...

L106 The oils were stored in the dark at room temperature until the analysis was undertaken

P5 L109 A 5g Was transferred to a 500 mL

P6 L136 Oil samples depending on their...

L135 ethanol is mentioned twice

P8 L181 profile of EVOOs, adulterated EVOO samples had ICDs that varied. When

P9 L209 has led to the application of new techniques to detect adulteration of olive oil

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by cheaper additives. In this study, SIFT-MS has been proposed. . .

1. Is the subject of the paper consistent with the scope of the journal? Y Yes
2. As far as you know, has the material been published before in English? N No
3. Does the scientific content of the paper justify the space it will occupy? Yes
4. Can any parts of the paper be shortened or omitted without loss of scientific content?
N
5. Are there any errors of fact or logic? See comments in letter to author.
6. Are all the figures necessary? Y
7. Is the number of significant figures in the tables justified as far as you know? Y
8. If the paper contains graphs and tables based on the same data, are both necessary? Y
9. Does the summary (normally about 50-100 words) bring out the main points of the paper? Y
10. Is the title suitable and adequate? Y
11. Are the literature references adequate? Y
12. Type of article. Please mark one of the below using x or *
___ Review
___ Short review
___ Paper
x Short paper
___ Comment

☐ Note

☐ Other

13. What is your overall recommendation? Please mark one of the below using x or *

☐ Publish as submit

☐ * Publish with major revision

☐ Publish with minor corrections

☐ Do not publish

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