**Reviewer B**

**There is no major corrections.**

**The paper is useful for publication due to a new and rapid analytical approach in determining and distinguishing commercial samples of edible vegetable oils. The main fatty acids in vegetable oil samples are clearly shown in overlaid ion chromatograms and obtained dendrogram also clearly clarify different groups of oil samples and their botanical origin.**

**Identification and quantification of some minor constituents in vegetable oils could be useful for verification the production procedure and monitoring of their authenticity.**

**In my opinion, this manuscript should be published after language correction by the author(s)**

**If manuscript is suitable for publishing, referees recommendation: Original scientific paper**

**Responses to a Reviewer B:**

**The authors would like to thank the Reviewer B for comments on the manuscript. The authors went throught the manuscript text and improved english language.**

**Reviewer C**

**Major remarks**

Abstract

The sentence ”Samples were produced from 17 plant species: olive, sunflower, safflower, flax, pumpkin, sesame, hemp, walnut, hazelnut, almond, grapeseed, black cumin, apricot seed, plum seed, soybean, wheat germ and rapeseed”, should be corrected, because the parts of plants are listed as species.

Which molecular ions are taken as descriptors and the obtained results are omitted in the abstract.

Experimental

Analyzed samples

Caption and the layout of the table I should be comprehensive. Again, samples are not sunflower seed…. It is botanical origin and source of oil.

In the table I, samples can be divided into certified and non-certified oils and below this row, next row: labels of samples. According to the changes in the table, rename caption of Table I, as well as the text in this part of manuscript.

The subtitle Data acquisition should be changed to Gas chromatography Data matrix construction and processing This section should be divided into two sections. The section Statistical analysis is omitted, as well as the software used for analysis. These two parts should also be written in more detail.

Results and discussion section

At the beginning of this chapter, it should explain why the nine most dominant fatty acids and their selected ions are taken for multivariate analysis. Ions 324 and 354 are not present in all plant species (Figure 1).

Have you tried a multivariate cluster analysis with 8 descriptors, without

324 ion (present only in 6 species)?

Figure 1 and its caption are completely unclear. How did you get the chromatograms of the ions you showed? Do they represent the mean values obtained for all samples of each plant species, or represent chromatograms obtained for one sample (Fx1, O3…) of each plant species?

Figure caption must contain all the details given in figure. The Fx, Wh… labels in the image do not mean anything if their explanation is not given in the caption of image. The numbers in the figure (2/2), what they represent. All chromatograms should have the same color for specific plant species. If the selected ion is placed at the top of the image, then it should not be repeated in the image. Why chromatograms of ions for oil from plum seed are omitted?

Figure 2 and its caption are completely unclear. The Fx, Wh… labels in the image do not mean anything if their explanation is not given in the caption of image. Virgin and refined oils should be clearly marked on dendogram.

The place of sentence “The ultimate goal of this study was a multi-category classification and multivariate clustering has been used as an exploratory technique”, in the text is not appropriate Explain what it means the ratio of 9 factors in the next sentence “The obtained dendrogram of the ratios of 9 factors present in 59 investigated edible vegetable oil samples is presented in figure 2.”

The sentence from lines 157 to 162 should be written more clearly. The missing information should be added to this sentence.

Comment on the obtained results (similarities and dissimilarities between clusters) and the discussion of the results were absent in Results and Discussion section.

Conclusion

This sentence “It is important to emphasize that the proposed semi-quantitative approach does not require exact qualitative nor quantitative determinations of eluting FAMEs.” should be changed, because this approach is qualitative, not semi-quantitative.

**Minor remarks**

Author’s names (English and Serbian versions); Affiliations (English and Serbian versions); Keywords; Running title; References (citation in the text and formatting) and Physical units should be corrected according to Instructions for authors.

Re-check spelling and grammar and insert spaces before % and °C in the text.

Line 147 Ionic function does not exist, there is only the abundance of ions.

Line 177 species to replace with compounds

Line 183 semi-quantitative to replace with qualitative

**Responses to Reviewer C:**

**Major remarks**

Abstract

The suggested corrections were introduced into the abstract text.

Experimental

Additional information was given in Table I. In the table I, samples are already divided into certified and non-certified oils. The subtitle was changed as suggested and another subsection was divided in two subsections. Also, the information about the program used for statistical data processing was added.

Results and discussion section

The explanation was given in the text. The authors tried various combinations of ions while performing multivariate analysis, and the selected ones, describing all eluting lipid components, were shown to be optimal for separation. The ions eluting only in oil samples of certain plant species represent discriminating factors of these species.

They don’t represent mean values, it is impossible to extract mean value of an ion in a chromatogram. Each line represents peak of a molecular marker ion of one oil sample belonging to each plant species, i.e. one separated group on dendrogram shown on figure 2.

The labels were given in Table I in detail and the explanation was given in a caption of figure 1.
The numbers shown in brackets show how many oil samples belonging to each botanical group contain a specific ion. The colours of lines were produced directly by the program, and that is something we cannot change, unfortunately. Chromatograms of plum oils were not presented because they belong to the same group like apricot oil, and are therefore grouped together in a dendrogram shown on figure 2.

These sentences were explained in more detail.

I am not sure which sentences concetely are in question? (lines 157-162) I think the numbering is wrong...

The comments on the obtained results were explained in more detail in the manuscript text.

Conclusion

The authors would still rather say that the proposed approach really is semi-quantitative, because multivariate data analysis tools take into account the numerical values of the integrated sufrace areas of the molecular ion peaks. These numerical values play a crucial role on discrimination of oil samples.

**Minor remarks**

Corrections were made according to Instructions for authors.

Grammar and spelling were re-checked and spaces were inserted before % and °C in the text.

Line 147 was corrected.

Line 177 was corrected.

**Reviewer D**

**The statistical analysis is missing, the Journal of this ranking requires significant statistical analysis of presented results, from which appropriate conclusions are derived, hence my recommendation is to reject this manuscript**

**Responses to a Reviewer D:**

**The statistical analysis is not missing. Considering large amounts of data, obtained after GC/MS analysis, in the form of many different variables, the authors decided to process the obtained data using multivariate statistical analysis tools. Therefore, classical statistical procedures were not applied. The proposed approach is therefore rapid, because classical statistical procedures are not necessary to be utilized.**