Data Article

Data supporting metabolite profiles of essential oils and SSR molecular markers in *Juniperus rigida* Sieb. et Zucc. from different regions: A potential source of raw materials for the perfume and healthy products

Zehua Liu, Shun Kuang, Mingliang Qing, Dongmei Wang**, Dengwu Li*

College of Forestry, Northwest A&F University, Yangling, Shaanxi 712100, China

**ABSTRACT**

The data presented in this article afford insight into how high-quality origins were basically evaluated viewed from yields of essential oils and how GC-MS fingerprint constructed and analyzed as supplementary materials supporting the results displayed in the article of metabolite profiles of essential oils and SSR molecular markers in *Juniperus rigida* Sieb. et Zucc. from different regions: A potential source of raw materials for the perfume and healthy products Liu et al., 2019. The presented data demonstrate the supplementary instruction of the GC-MS fingerprint analysis results of *Juniperus rigida* from different origins Meng et al., 2016. The data of essential oils yields, similarities and correlation coefficients of GC-MS fingerprint and principal component analysis (PCA) supported the results of high-quality *J. rigida* provenance selection.

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1. Data

Data presented in this article displays a drawing showing the supplementary information for the GC-MS fingerprint analysis. The yields of essential oils of J. rigida in different origins were displayed in Fig. 1. The similarities comparison of GC-MS chromatography of J. rigida essential oils from different...
origins was showed in Table 1. The correlation coefficients among different groups were assessed to support the GC-MS fingerprint analysis as well as quality evaluation of J. rigida origins (Table 2). The scores plot generated from principal component analysis (PCA) of J. rigida variables (S1-10) supported the results of hierarchical clustering analysis in GC-MS chromatography for screening the high-quality origins (Fig. 2).

### Table 1
| No. | S1   | S2   | S3   | S4   | S5   | S6   | S7   | S8   | S9   | S10  |
|-----|------|------|------|------|------|------|------|------|------|------|
| S1  | 1.000|      |      |      |      |      |      |      |      |      |
| S2  | 0.901| 1.000|      |      |      |      |      |      |      |      |
| S3  | 0.833| 0.824| 1.000|      |      |      |      |      |      |      |
| S4  | 0.983| 0.906| 0.903| 1.000|      |      |      |      |      |      |
| S5  | 0.921| 0.945| 0.929| 0.950| 1.000|      |      |      |      |      |
| S6  | 0.987| 0.914| 0.805| 0.960| 0.911| 1.000|      |      |      |      |
| S7  | 0.951| 0.929| 0.761| 0.917| 0.907| 0.976| 1.000|      |      |      |
| S8  | 0.935| 0.883| 0.679| 0.878| 0.833| 0.960| 0.955| 1.000|      |      |
| S9  | 0.892| 0.881| 0.638| 0.832| 0.808| 0.929| 0.929| 0.978| 1.000|      |
| S10 | 0.906| 0.888| 0.646| 0.844| 0.820| 0.938| 0.949| 0.995| 0.982| 1.000|

### Table 2
| Group | G1       | G2       | G3       |
|-------|----------|----------|----------|
| G1    | 0.985 ± 0.008\(^a\)(n = 3) | 0.658\(^b\) | 0.924\(^b\) |
| G2    | 1\(^a\)(n = 1) | 0.862\(^b\) |         |
| G3    | 0.937 ± 0.029\(^a\)(n = 6) |         |         |

\(^a\) Correlation coefficient of individual chromatograms to the simulative mean chromatogram of the corresponding group. Values are the mean ± SD.

\(^b\) Correlation coefficient between simulative mean chromatograms.

![Fig. 2. The scores plot generated from principal component analysis (PCA) of variables (S1-10).](image-url)
2. Experimental design, materials and methods

2.1. Extraction of essential oils

All *J. rigida* needles were air-dried and powdered, and were stored in the dark at \(-20\) °C for further analysis. The essential oils of *J. rigida* were isolated by supercritical CO\(_2\) fluid extraction technology used by Meng et al. \[2\]. The optimum condition is at a pressure of 18 MPa and a temperature of 40 °C and an extraction time of 120 min. The essential oil was stored in tightly closed dark vials and covered with aluminum foil at 4 °C until further analysis. The essential oil was obtained as a light yellow liquid and had specific aroma.

2.2. Principal component analysis (PCA)

Principal component analysis (PCA) was performed using SPSS software (SPSS for Windows 19.0, SPSS Inc., USA) for the chemometrics of essential oils \[3\]. Differences in chromatograms of samples mainly existed due to variations in the common peaks. To evaluate the discrimination capacity of the common constituents, PCA was conducted using the RPAs of common peaks using HCA input data. The first two principal components contained the most information of all variables, accounting more than 85% of total variability. The score plot of the first three principal components, PC1 and PC2, visually revealed a positive influence on quality evaluation of *J. rigida* from different regions.

Acknowledgements

Financial support is provided by the program from the National Natural Science Foundation of China (No.31570655) and the Fundamental Research Funds for the Central Universities (QN2011077).

Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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