

Poster Session

P-001: Chemical diversity of 14 wild grown *Zataria multiflora* populations from Iran determined by NIR and GC-MS

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Zataria multiflora Boiss. (ZM) is an aromatic shrub belonging to the Lamiaceae family growing wild in Iran, Pakistan and Afghanistan. ZM has several traditional antiseptic, carminative, anti-spasmodic and analgesic uses. Furthermore, its aerial parts are used in the pharmaceutical and food industries [1]. The chemical constituents of 14 accessions of ZM have been analyzed by gas chromatographic and mass spectrometry (GC–MS) and near infrared (NIR) spectroscopy. In combination with multivariate data analysis these two methods are used for both qualitative and quantitative analysis to evaluate the individual influence of genetic background and local environmental factors of selected accessions in Iran with respect to chemical diversity. NIR spectroscopy is considered as a powerful, fast, accurate and non-destructive analytical tool that might even replace traditional chemical analysis in some cases [2]. The dendrogram obtained from the NIR spectral measurements revealed that these 14 accessions are grouped into two main clusters, the first main cluster included 11 accessions, while the second main cluster contained 3 accessions.

Further investigations showed that essential oil yield has ranged from $2.75 \pm 0.43\%$ v/w. to $5.89 \pm 0.26\%$. The essential oil was analysed by GC-FID and GC-MS. 60 compounds were identified, with the major constituents being thymol, carvacrol, linalool, and p-cymene. On the basis of the essential oil composition, the 14 accessions were divided into different chemotypes. Clustering of accessions based on NIR and Mass Spectrometry are compared to each other and discussed with respect to local climate and soil parameters.

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References

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