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CHEMOMETRIC STUDIES ON THE AROMA COMPOUNDS OF HONEY SAMPLES PRODUCED IN KAZAKHSTAN

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Honey is a nutritious food with economic importance for many countries worldwide. It is preferred due to their taste. Moreover, the aroma compounds, which are one of the parameters of honey quality, also indicate the honey's origin. The aroma compounds of honey also play an important role in detecting adulteration since honey volatiles play a major role in differentiating the types of honey based on their plant origin [1,2]. In general, honey is classified by the floral source of the nectar containing different pollens from which it was made. Although the pollen analyses classified the honey, the analyses are hard and give rude responses. In contrast, the qualitative and quantitative analyses of each aroma compound give information about the adulteration [3]. Besides the most frequent adulteration, the determination of the aroma compounds detection also indicates if the honey was heated or not. Thus, the analyses of aroma compounds provide consumers with more advantages.

The aroma compounds of sixteen honey samples, namely, 2 agrimonia, 3 buckwheat, 4 tamarix, and 7 sunflower honey samples collected from four different regions (Oskemen, Almaty, Kokshetau and Zhambul) of Kazakhstan were analyzed using Headspace GC-MS. In total, 77 aroma compounds were detected and 74 of them were identified. The identification percentages were more than 95%. The main compounds were selected for the chemometric analyses using Minitab 17.0 software. The score and the loading graphs of principal component analyses were well performed. Agrimonia, buckwheat, tamarix, and sunflower honey samples differentiated according to the score graph of aroma compounds. Dehydro-*p*-cymene, β -linalool, 2-nonen-1-ol, and linalool oxide were dominant compounds for agrimonia honey while nonanol, benzaldehyde, octanol, dehydro-*p*-cymene and β -linalool for buckwheat honey, and β -citral, lilac aldehyde A, limonene, β -damascenone, linalool oxide for tamarix honey, and hotrienol, cosmene, α -pinene, carvacrol for sunflower honey.

KEYWORDS: Aroma compounds, Headspace-GC/MS, Principle Component Analysis, Chemometry, Monofloral Honey

REFERENCES:

1. Durmaz, N.E., Anlı, R.E., Güçer, Y. and Artık, N., European Journal of Science and Technology, (2020), 20, 796-800.
2. Tian, H., Shen, Y., Yu H. and Chen, C., International Journal of Food Properties, (2018), 21 (1): 1755-1768.