

The Volatile Profile Characterization of Different Vinegars from the International Market

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SUMMARY

The present study aims the fingerprint characterization of 14 different vinegars purchased from the local market of different countries (Romania, Germany, Italy and France) and the identification of the major „marker compounds” present in all the analyzed vinegars.

The volatile compounds fingerprints were determined with a Shimadzu QP-2010 HS/GC-MS from 4 apple vinegars (AV), 1 wine vinegars (WV), 1 pear vinegar (PV), 5 balsamic vinegars of Modena (BVM) and 3 balsamic wine vinegars (BWV).

Significant differences were found regarding the volatile compounds identified in all the analyzed samples, mostly due to the different raw materials used for the production.

Relatively high concentrations have been identified in all the analyzed samples for 3-methyl-1-butanol; 2-methyl-1-butanol; isobutyl acetate; 2-methyl-1-butanol acetate and 3-methyl-1-butanol acetate, considered to be „marker compounds” due to this fact. From all these the most volatile were 3-methyl-1-butanol, followed by 2-methyl-1-butanol and isobutyl acetate as their concentrations were the highest identified.

The most complex fingerprint having 29 and 22 compounds was identified for the two AV from Germania and respectively Romania (Figure 1.b), followed by PV and BWV, purchased from Freising Germany, having both 20 identified compounds.

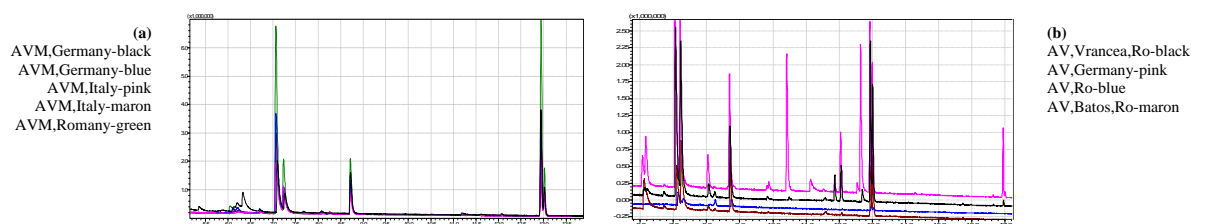


Figure 1. The HS/GC-MS overlay chromatograms of ABM (a) and AV (b) samples

The AVM samples purchased from various countries gave a poor volatile compound fingerprint, with the highest number of compounds (12) identified in the Romanian vinegar, followed by the one purchased from Italy and finally Germany (Figure 1.a).

The volatile compounds fingerprint obtained for each samples proved to be efficient way of establishing the major volatile compounds considered “marker compounds” and of assessing the vinegars authenticity.

REFERENCES

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