Application Report 420

Agricultural Pesticides in Wine

This application demonstrates the usefulness of SPME in the low-level extraction of agricultural pesticides from wine, and the use of the SLB-5ms in the subsequent analysis. The pesticides chosen for the analysis represent a group of insecticides and fungicides that could be found in commercial wines (1) . These compounds contain a variety of polar functional groups, and the polyacrylate fiber provided the selectivity necessary for extraction from a wine matrix. The inertness and low bleed of the SLB-5ms enabled subsequent low-level analysis of these compounds by GC-MS.

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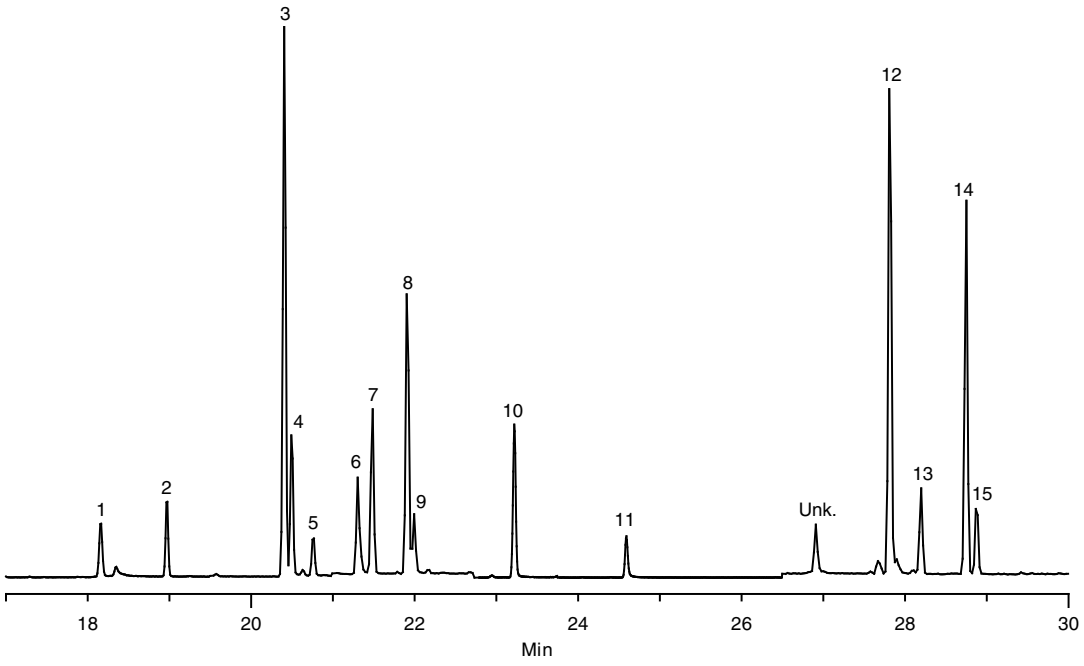
Acquisition System: 5972 GC-MS
Notebook Reference: 1569-048

Key Words

Agricultural pesticides, wine, SPME, SLB-5ms, GC-MS



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Conditions

sample:	white wine spiked with 50 ppb pesticides
SPME fiber:	85 µm polyacrylate (57304)
extraction:	immersion, room temp. (3 min.)
desorption:	5 min. at 250 °C
column:	SLB-5ms, 30 m x 0.25 mm I.D., 0.25 µm (28471-U)
oven:	60 °C (1 min.), 15 °C/min to 100 °C, 7 °C/min. to 300 °C (1 min.)
MSD interface:	325 °C
scan range:	SIM
carrier gas:	helium, 0.7 mL/min., constant
liner:	0.75 mm I.D. SPME liner

Peak IDs

1. Dicloran
2. Diazinon
3. Chloropyrifos-methyl
4. Vinclozolin
5. Carbaryl
6. Methiocarb
7. Dichlofluanid
8. Parathion-ethyl
9. Triadimefon
10. Procymidone
11. Myclobutanil

Unk. Unknown

12. Imidan (Phosmet)
13. Dicofol
14. Phosalone
15. Azinphos-methyl

References:

1. Soleas, G.J.; Yan, J.; Hom, K.; Goldberg, D.M., Multiresidue Analysis of Seventeen Pesticides in Wine by Gas Chromatography with Mass-selective Detection. J. Chromatogr. A, 2000, 882: 205-212.
2. Zambonin, C.G.; Quinto, M.; DeVietro, N.; Palmisano, F., Solid-phase Microextraction – gas Chromatography: A Fast and Simple Screening Method for the Assessment of Organophosphorus Pesticides Residues in Wine and Fruit Juices. Food Chemistry, 2004, 86: 269-274.