Supporting Information for

Selective extraction of natural products with benign solvents and recovery by organophilic pervaporation: fractionation of D-limonene from orange peels

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Figure 1: ^{1}H NMR spectra of PEG before (upper) and after pervaporation experiment (lower) in solvent dichloromethane.

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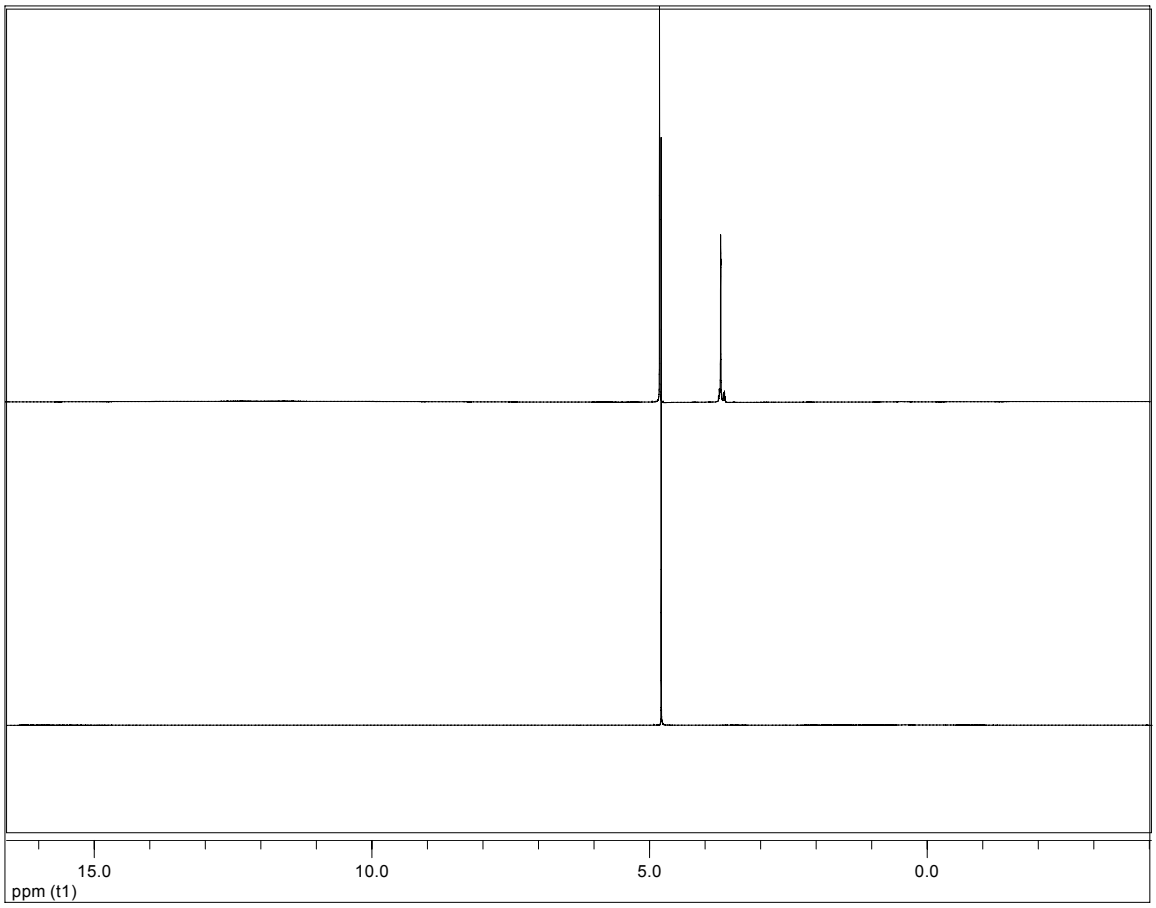

Figure 1: ^{1}H NMR spectra of PEG in the feed before (upper) and of the permeate after pervaporation experiment (lower) in solvent dichloromethane.

Table 1: Physico-chemical properties of the compounds that are observed in orange peels

Compound	**Molecular Formula**	**Molecular Weight (g/mole)**	**Vapour Pressure (mbar at 20 ^{O}C)**	**Boiling Point (^{O}C)**
α - Pinene	$C_{10}H_{16}$	136.24	4	155
β - Pinene	$C_{10}H_{16}$	136.24	3.91	164
Myrcene	$C_{10}H_{16}$	136.24	9	168
Octanal	$C_8H_{16}O$	128.21	3	169
3-Carene	$C_{10}H_{16}$	136.24	5	169
Limonene	$C_{10}H_{16}$	136.24	3	176
Octanol	$C_8H_{18}O$	130.23	< 0.1	195
Nerol	$C_{10}H_{18}O$	154.25	0.03	224
Linalool	$C_{10}H_{18}O$	154.25	0.09	199
α - Terpineol	$C_{10}H_{18}O$	154.25	0.05	219

Table 2: GC retention time of the compounds that are observed in orange peels

Compounds	GC Retention Time* (min)
α -Pinene	7.08
β -Pinene	9.07
Myrcene	9.36
Octanal	10.46
3-Carene	10.72
Limonene	11.97
Octanol	12.34
Nerol	13.87
Linalool	29.71
Terpineol	38.76

*The standard deviation of the retention times, for the different compounds analysed, was found to be always lower than 5%.

Conditions:

The Gas Chromatograph used (GC-2014, Shimadzu Corporation, Japan) was controlled by GC Solution software, using a packed Carbowax-10 column with 22m x 0.32 mm and 0.25 μm film thickness. The oven temperature was initially set at 70°C and then increased from 70°-250°C at 2°C/min and held isothermal for 60 min. The injectors were set at 250°C, with a split ratio of 1/50 for FID. The FID detector was maintained at 270°C. The sample volume injected was 50 μl. The carrier gas was hydrogen, at a constant flow rate of 0.95 ml/min.