

Heart-cut EGA-GC/MS Analysis of Crude Drug Propolis from Different Areas

[Background] The compositions and activities of crude drugs depend on various factors such as species, harvest time, producing area, and individual species. Here, evolved gas analysis (EGA-MS) and heart-cut EGA-GC/MS techniques were employed to determine the compositions of propolis harvested from two different areas, and the results were compared.

[Experimental] Selective sampler and Micro-Jet cryo trap were used to heart-cut zones that showed difference between the two EGA thermograms obtained from two propolis samples, and each zone was analyzed by GC/MS.

[Results] Fig. 1 shows EGA thermograms for the two propolis samples. Zone A (temperature range from 50 to 180°C) showed a definite difference in the thermogram profile and average mass spectra. Zone A was heart-cut and analyzed by GC/MS. The results are shown in Fig. 2. It is found that there are discernible differences in peak intensity between the two samples in the region of low boiling essential oils, which represent antibiotics, and free volatile flavonoids.

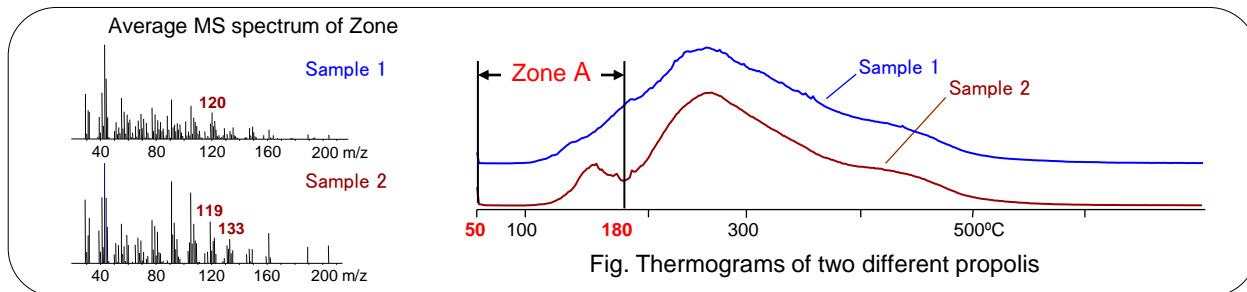


Fig. 1 Thermograms of two different propolis

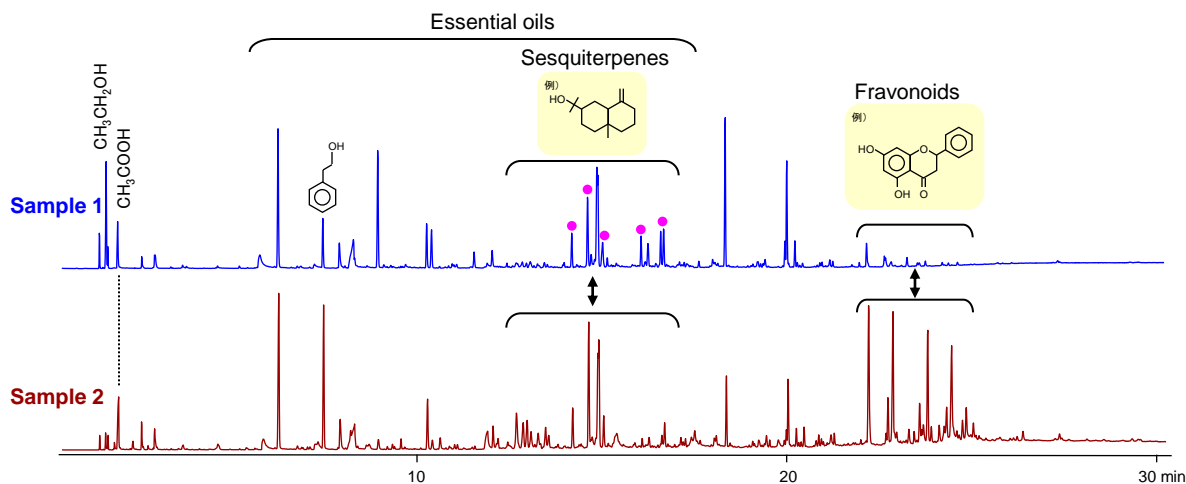


Fig. 2 Chromatograms of Zone A of EGA thermograms for 2 different propolis

Pyrolysis temperature.: 50~700°C (20°C/min), Column head pressure : 50 kPa, Split ratio : 1/50. Separation column : Ultra ALLOY+5 (5 % diphenyl 95 % dimethylpolysiloxane), id 0.25 mm, L= 2.5 m, GC oven temperature.: 40-300°C(10°C/min), Sample size : 300 µg, Detector : MS (m/z=29-550, 0.2 scans/sec

Keywords : Crude drug (galenical), Propolis, Evolved gas analysis, Heart-cut EGA

Products used : Multi-functional pyrolyzer, Vent-free GC/MS adapter, Selective Sampler, MicroJet Cryo-Trap, UA-5

Applications : General crude drug analysis

Related technical notes : PYA1-030E, PYA1-032E

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