



PLANT THERAPY

100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: F10102

ESSENTIAL OIL: FENNEL

BOTANICAL NAME: FOENICULUM VULGARE

ORIGIN: EGYPT

| KEY CONSTITUENTS PRESENT IN THIS BATCH OF FENNEL OIL | % |
|--|------|
| Trans-ANETHOLE | 73.2 |
| FENCHONE | 13.4 |
| α -PINENE | 4.0 |
| METHYL CHAVICOL (ESTRAGOLE) | 2.6 |
| LIMONENE | 1.6 |
| α -PHELLANDRENE | 1.3 |
| β -MYRCENE | 0.8 |
| γ -TERPINENE | 0.4 |
| β -PINENE | 0.3 |
| ANISALDEHYDE | 0.1 |
| Cis-ANETHOLE | 0.1 |

Comments from Robert Tisserand: This is a very good quality fennel oil, and conforms to the ISO standard.

CUSTOMER :

PLANT THERAPY
126 Locust Street South
Twin Falls, ID 83 301
USA

Sample nature: ESSENTIAL OIL
Botanical species: FOENICULUM VULGARE
Reference name: FENNEL USA
Batch number: F10102
Origin: EGYPT
Part: FRUIT
Pyre^ossences reference: C270
Date of reception: 12/15/2014
Date analysis: 12/18/2014
Packaging: Amber flask of 4 ml – ambient temperature
Analysis: Classic

Validated report by :

Daniel DANTIN



GAS CHROMATOGRAPHY norm NF ISO 11024

Analysis conditions :

CPG 6890 / MS 5973 – Column : VF WAX polar 60 m × 0,25 mm × 0,5 µm

CPG 5890 FID - Column : INNOWAX polar 60 m × 0,25 mm × 0,5 µm

Temperature program : 6 mn to 60 °C –2 °C/mn→250 °C – 10 mn to 250 °C

Carrier gas He : 23 psis/MS – 30 psis/FID

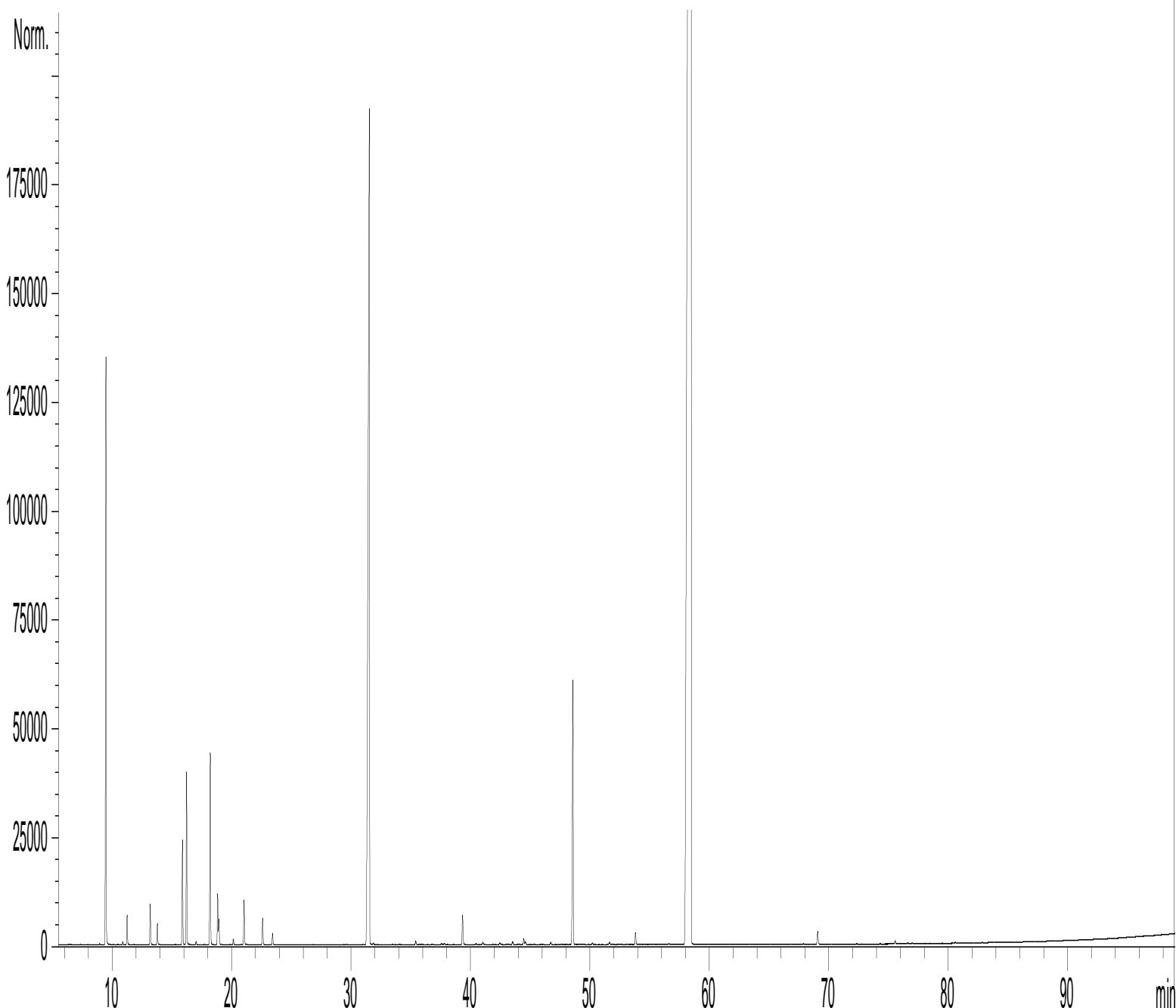
Sample injection / split : 1 µl of 10 % solution in hexane,

Mass range : 30 to 350, Oil components are identified by a combination of retention times (our own database) and mass spectra library NKS 75 000 records,

Percentages are calculated from GC/FID peaks areas without using corrections factors,

Chromatographic profile (GC/FID)

FID1 A, (Y:\PLANTHER\FV14C270.D)



Identification results 1 : FENNEL USA BATCH F10102

| Peak | RT (min) | Compound name | % | Norm (%) | Allergens |
|------|----------|------------------------------------|--------------|-----------------|-------------|
| 1 | 9,4 | α-PINENE | 3,99 | 1 - 8 | |
| 2 | 9,5 | α-THUYENE | 0,06 | | |
| 3 | 10,9 | α-FENCHENE | 0,02 | | |
| 4 | 11,2 | CAMPHENE | 0,21 | | |
| 5 | 13,2 | β-PINENE | 0,31 | < 1 | |
| 6 | 13,8 | SABINENE | 0,16 | | |
| 7 | 15,9 | β-MYRCENE | 0,81 | < 1,5 | |
| 8 | 16,2 | α-PHELLANDRENE | 1,33 | 0,2 - 5 | |
| 9 | 16,4 | ψ-LIMONENE | 0,01 | | |
| 10 | 17,0 | α-TERPINENE | 0,03 | | |
| 11 | 18,2 | LIMONENE | 1,57 | 1 - 8 | 1,57 |
| 12 | 18,8 | β-PHELLANDRENE | 0,63 | | |
| 13 | 20,1 | Cis-β-OCIMENE | 0,04 | | |
| 14 | 21,0 | γ-TERPINENE | 0,37 | < 1,5 | |
| 15 | 21,2 | Trans-β-OCIMENE | 0,01 | | |
| 16 | 22,6 | p-CYMENE | 0,23 | | |
| 17 | 23,4 | TERPINOLENE | 0,10 | | |
| 18 | 31,5 | FENCHONE | 13,39 | 8 - 20 | |
| 19 | 31,9 | PINENOL ISOMERE | 0,01 | | |
| 20 | 35,4 | Trans-THUYANOL | 0,03 | | |
| 21 | 36,0 | α-p-DIMETHYLSTYRENE | 0,01 | | |
| 22 | 37,6 | FENCHYL ACETATE | 0,01 | | |
| 23 | 37,9 | α-COPAENE | 0,01 | | |
| 24 | 39,3 | CAMPHOR | 0,29 | | |
| 25 | 40,5 | LINALYL ACETATE | 0,01 | | |
| 26 | 41,0 | Cis-p-MENTH-2-EN-1-OL | 0,03 | | |
| 27 | 42,5 | α,cis-BERGAMOTENE | 0,02 | | |
| 28 | 43,0 | FENCHOL | 0,01 | | |
| 29 | 43,5 | α,trans-BERGAMOTENE | 0,03 | | |
| 30 | 44,4 | TERPINENE-4-OL | 0,06 | | |
| 31 | 44,6 | β-CARYOPHYLLENE | 0,03 | | |
| 32 | 46,7 | Cis-p-MENTH-2-EN-1-OL | 0,02 | | |
| 33 | 48,6 | METHYL CHAVICOL (ESTRAGOLE) | 2,55 | 2 - 6 | |
| 34 | 50,2 | α-TERPINEOL | 0,02 | | |
| 35 | 51,6 | GERMACRENE D | 0,02 | | |
| 36 | 53,8 | Cis-ANETHOLE | 0,12 | < 0,5 | |
| 37 | 54,2 | δ-CADINENE | 0,01 | | |
| 38 | 56,6 | SABINOL ISOMER | 0,01 | | |
| 39 | 58,4 | Trans-ANETHOLE | 73,23 | 60 - 80 | |
| 40 | 69,1 | ANISALDEHYDE | 0,13 | < 2 | |
| 41 | 75,6 | ANICETONE | 0,03 | | |
| 42 | 76,6 | METHYLISOEUGENOL | 0,01 | | |
| | | TOTAL | 99,97 | | 1,57 |