

## SERVICE DE SPECTROMETRIE DE MASSE DE L'ISIC (SSMI)

**Dr. Laure Menin**  
**Francisco Sepulveda**  
EPFL-SB-ISIC  
SSMI, BCH 1524  
CH-1015 Lausanne  
Suisse  
Phone: +41 21 693 94 64  
Fax: +41 21 693 97 50  
Laure.menin@epfl.ch

**Pr. Yury O. Tsybin, Directeur**  
EPFL-SB-ISIC  
LSMB, BCH 4312  
CH-1015 Lausanne  
Suisse  
Phone: +41 21 693 97 51  
Fax: +41 21 693 97 00  
Yury.tsybin@epfl.ch



### *ANALYSES GC-MS*

Le 28 Avril 2011

**Objet:** Analyse d'une huile essentielle par GC-MS  
**Nom:** Cannelle feuille  
**Lot:** CIN2001/507  
**Destinataire :** Entreprise Gedane (Lausanne, Suisse)  
**Composés majoritaires:** Eugenol ;  $\beta$ -Caryophyllene

---

### *CONDITIONS EXPERIMENTALES*

---

**Type d'instrument :** GC CP-3800 couplé au 1200L Triple quadrupole MS/MS (Varian)

**Mode d'ionisation :** Impact électronique (IE), 70 eV (mode positif)

**Gamme de masse :**  $m/z$  50-250 en 0.5 sec

**Colonne :** FactorFour VF-5ms (5% phenyl-methyl 95% dimethyl polysiloxane, 0.25mm x 30 m)

**Débit :** 1 mL/min

**Gradient :** 50°C pendant 3 min; Montée à 150°C en 20 min; Montée à 250°C en 7 min

**Calibrant :** FC43

**Echantillons :** Huile essentielle diluée 1:500 dans l'éther. Injection de 1  $\mu$ L.

---

Figure 1 – Chromatogramme TIC-GC/MS d'huile essentielle de feuille de Cannelle (CIN2001/507) analysée sur colonne capillaire

FactorFour VF-5ms (5% phenyl-methyl 95% dimethylpolysiloxane, 0.25mm x 30 m). Les numéros des pics sont reportés dans la Table 1.

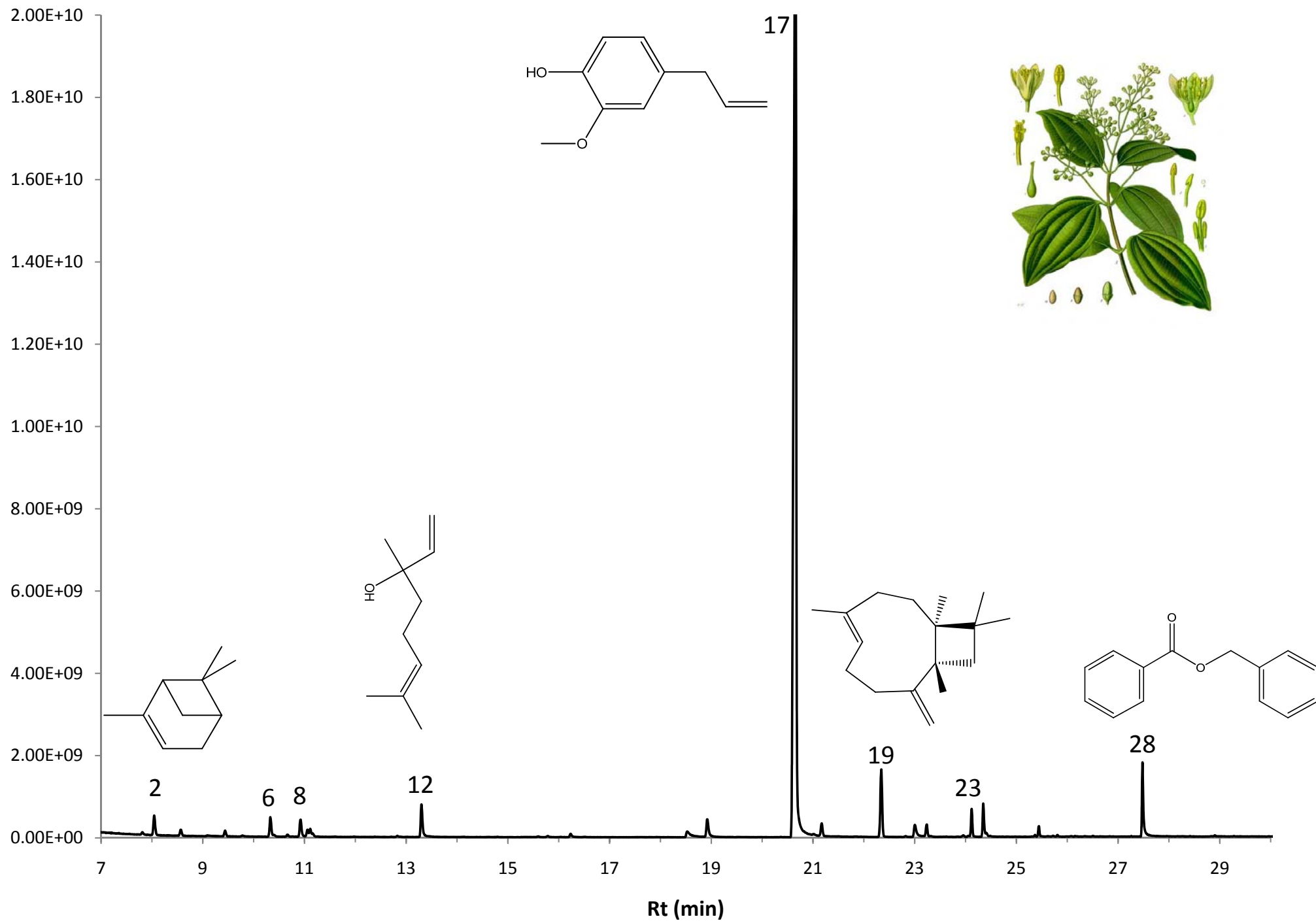


Table 1 – Composition de l'huile essentielle de Cannelle feuille (CIN2001/507)

N°	Retention Time (min.)	Area	% of Total	Identification (NIST 08/MassFinder)	Prob (%)
1	7.81	1.32E+08	0.12	$\alpha$ -Thujene	41
<b>2</b>	<b>8.04</b>	<b>1.18E+09</b>	<b>1.09</b>	<b><math>\alpha</math>-Pinene</b>	<b>71</b>
3	8.57	3.66E+08	0.34	Camphene	65
4	9.44	3.34E+08	0.31	$\beta$ -Pinene	71
5	9.78	3.60E+07	0.03	Myrcene	20
<b>6</b>	<b>10.33</b>	<b>1.26E+09</b>	<b>1.16</b>	<b><math>\delta</math>-3-Carene</b>	<b>77</b>
7	10.67	1.35E+08	0.12	$\alpha$ -Terpinene	67
<b>8</b>	<b>10.92</b>	<b>1.12E+09</b>	<b>1.04</b>	<b>p-Cymene</b>	<b>84</b>
9	11.06	4.28E+08	0.40	D-Limonene	21
10	11.11	4.71E+08	0.44	$\beta$ -Phellandrene	43
11	11.16	2.18E+08	0.20	Eucalyptol	72
<b>12</b>	<b>13.30</b>	<b>1.98E+09</b>	<b>1.83</b>	<b>Linalool</b>	<b>69</b>
13	15.79	6.70E+07	0.06	4-Terpineol	62
14	16.23	2.16E+08	0.20	$\alpha$ -Terpineol	73
15	18.53	4.66E+08	0.43	Cinnamaldehyde,(E)-	54
16	18.92	1.31E+09	1.21	Safrol	62
<b>17</b>	<b>20.65</b>	<b>8.54E+10</b>	<b>78.98</b>	<b>Eugenol</b>	<b>75</b>
18	21.17	8.42E+08	0.78	$\alpha$ -Cubebene	83
<b>19</b>	<b>22.34</b>	<b>4.09E+09</b>	<b>3.78</b>	<b><math>\beta</math>-Caryophyllene</b>	<b>51</b>
20	23.00	1.04E+09	0.96	Cinnamyl Acetate	80
21	23.24	9.03E+08	0.84	$\alpha$ -Humulene	73
22	23.95	1.09E+08	0.10	5-epi-Aristolochene	62
<b>23</b>	<b>24.35</b>	<b>1.62E+09</b>	<b>1.50</b>	<b>Eugenyl Acetate</b>	<b>42</b>
24	24.41	2.05E+08	0.19	$\delta$ -Cadinene	32
25	25.36	5.09E+07	0.05	Spathulenol	30
26	25.44	4.94E+08	0.46	Caryophyllene Oxide	76
27	25.81	6.50E+07	0.06	Humulene-epoxide-II	60
<b>28</b>	<b>27.48</b>	<b>3.60E+09</b>	<b>3.33</b>	<b>Benzyl Benzoate</b>	<b>98</b>

Table 1 – Composition de l'huile essentielle de Cannelle feuille (CIN2001/507)

N°	Retention Time (min.)	Area	% of Total	Identification (NIST 08/MassFinder)
1	7.81	1.32E+08	0.12	$\alpha$ -Thujene
<b>2</b>	<b>8.04</b>	<b>1.18E+09</b>	<b>1.09</b>	<b><math>\alpha</math>-Pinene</b>
3	8.57	3.66E+08	0.34	Camphene
4	9.44	3.34E+08	0.31	$\beta$ -Pinene
5	9.78	3.60E+07	0.03	Myrcene
<b>6</b>	<b>10.33</b>	<b>1.26E+09</b>	<b>1.16</b>	<b><math>\delta</math>-3-Carene</b>
7	10.67	1.35E+08	0.12	$\alpha$ -Terpinene
<b>8</b>	<b>10.92</b>	<b>1.12E+09</b>	<b>1.04</b>	<b>p-Cymene</b>
9	11.06	4.28E+08	0.40	D-Limonene
10	11.11	4.71E+08	0.44	$\beta$ -Phellandrene
11	11.16	2.18E+08	0.20	Eucalyptol
<b>12</b>	<b>13.30</b>	<b>1.98E+09</b>	<b>1.83</b>	<b>Linalool</b>
13	15.79	6.70E+07	0.06	4-Terpineol
14	16.23	2.16E+08	0.20	$\alpha$ -Terpineol
15	18.53	4.66E+08	0.43	Cinnamaldehyde,(E)-
16	18.92	1.31E+09	1.21	Safrol
<b>17</b>	<b>20.65</b>	<b>8.54E+10</b>	<b>78.98</b>	<b>Eugenol</b>
18	21.17	8.42E+08	0.78	$\alpha$ -Cubebene
<b>19</b>	<b>22.34</b>	<b>4.09E+09</b>	<b>3.78</b>	<b><math>\beta</math>-Caryophyllene</b>
20	23.00	1.04E+09	0.96	Cinnamyl Acetate
21	23.24	9.03E+08	0.84	$\alpha$ -Humulene
22	23.95	1.09E+08	0.10	5-epi-Aristolochene
<b>23</b>	<b>24.35</b>	<b>1.62E+09</b>	<b>1.50</b>	<b>Eugenyl Acetate</b>
24	24.41	2.05E+08	0.19	$\delta$ -Cadinene
25	25.36	5.09E+07	0.05	Spathulenol
26	25.44	4.94E+08	0.46	Caryophyllene Oxide
27	25.81	6.50E+07	0.06	Humulene-epoxide-II
<b>28</b>	<b>27.48</b>	<b>3.60E+09</b>	<b>3.33</b>	<b>Benzyl Benzoate</b>