3.2 Analysis of Pharmaceutical (Beeswax) - GCMS

•Explanation

The beeswax in this analysis was refined from wax taken from a beehive, and is used as a base in the production of ointments and salves and as a cosmetic material in creams, etc. Beeswax mostly comprises higher fatty acid and higher alcohol ester.

•Analytical Conditions

Instrument : GCMS-QP5050A

— GC —

Column : DB - 5 (30m × 0.25mmi.d. df = 0.1μm)

Column Temp. : 60°C (2min) - 20°C/min-200°C
-10°C/min-300°C - 15°C/min-350°C

— MS —

Interface Temp. : 280°C

Ionization Method : EI

Scan Range : m/z 35-700

Scan Interval : 0.5sec

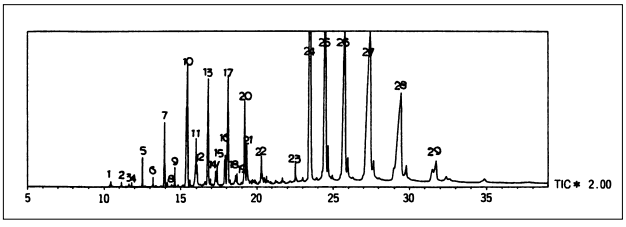

Fig. 3.2.1 Total ion chromatogram of beeswax

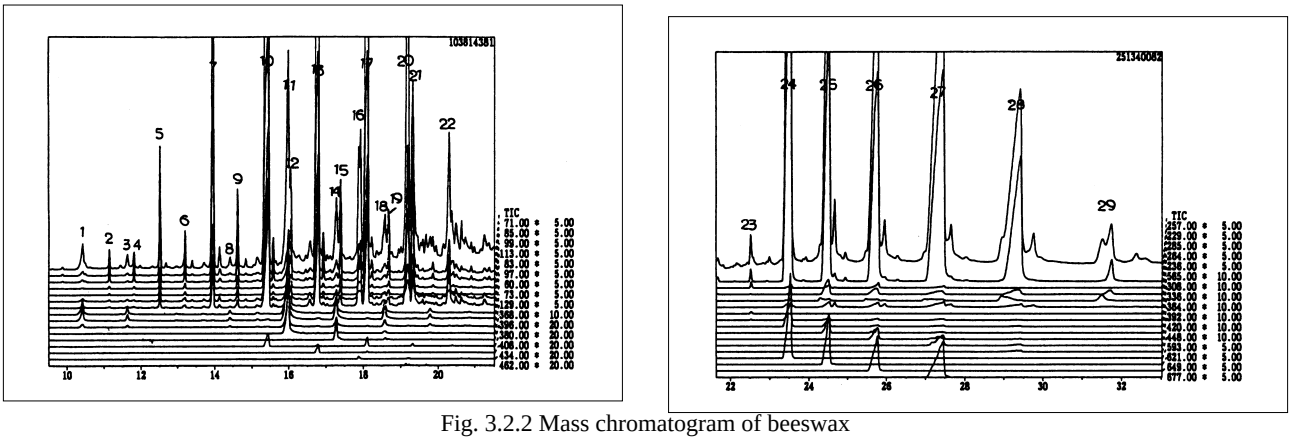

Fig. 3.2.2 Mass chromatogram of beeswax

Chart 3.2.1 Beeswax Qualitative Results

No.	Molecular Weight	Chemical Formula	Compound Name	No.	Molecular Weight	Chemical Formula	Compound Name
1	256	$C_{15}H_{31}COOH$	Palmitic acid	16	434	$C_{31}H_{62}$	1-hentriacontane
2	296	$C_{21}H_{44}$	Heneicosane	17	436	$C_{31}H_{64}$	Hentriacontane
3	284	$C_{17}H_{35}COOH$	Stearic acid	18	424	$C_{27}H_{55}COOH$	Montan acid
4	310	$C_{22}H_{46}$	Docosane	19	450	$C_{32}H_{66}$	Dotriacontane
5	324	$C_{23}H_{48}$	Tricosane	20	462	$C_{33}H_{66}$	1-tritriacontane
6	338	$C_{24}H_{50}$	Tetracosane	21	464	$C_{33}H_{68}$	Tritriacontane
7	352	$C_{25}H_{52}$	Pentacosane	22	490	$C_{35}H_{70}$	1-pentatriacontane
8	340	$C_{21}H_{43}COOH$	Behenic acid	23	564	$C_{15}H_{31}COOC_{22}H_{45}$	Palmitic acid docosane
9	366	$C_{26}H_{54}$	Hexacosane	24	592	$C_{15}H_{31}COOC_{24}H_{49}$	Palmitic acid tetracosane
10	380	$C_{27}H_{56}$	Heptacosane	25	620	$C_{15}H_{31}COOC_{26}H_{53}$	Palmitic acid hexacosane
11	368	$C_{23}H_{47}COOH$	Lignoceric acid	26	648	$C_{15}H_{31}COOC_{28}H_{57}$	Palmitic acid octacosane
12	394	$C_{28}H_{58}$	Octacosane	27	676	$C_{15}H_{31}COOC_{30}H_{61}$	Palmitic acid triacontane
13	408	$C_{29}H_{60}$	Nonacosane	28	704	$C_{15}H_{31}COOC_{32}H_{65}$	Palmitic acid dotriacontane
14	396	$C_{25}H_{51}COOH$	Cerotic acid	29	732	$C_{15}H_{31}COOC_{34}H_{69}$	Palmitic acid tetratriacontane
15	422	$C_{30}H_{62}$	Triacosan				