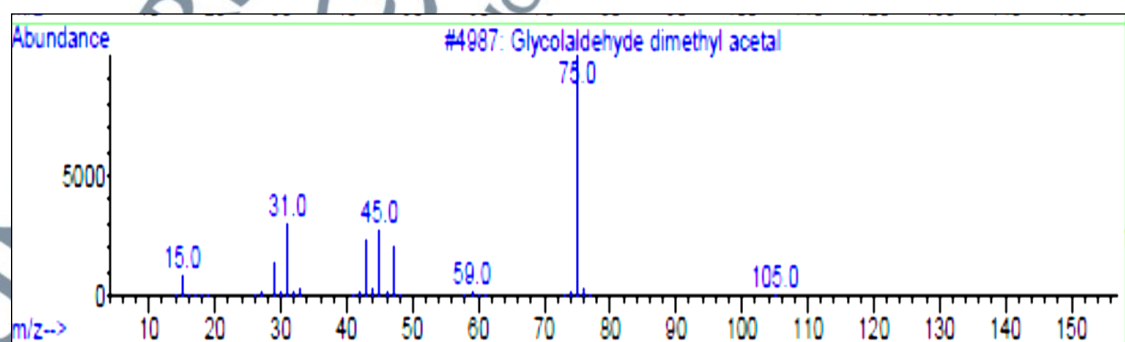
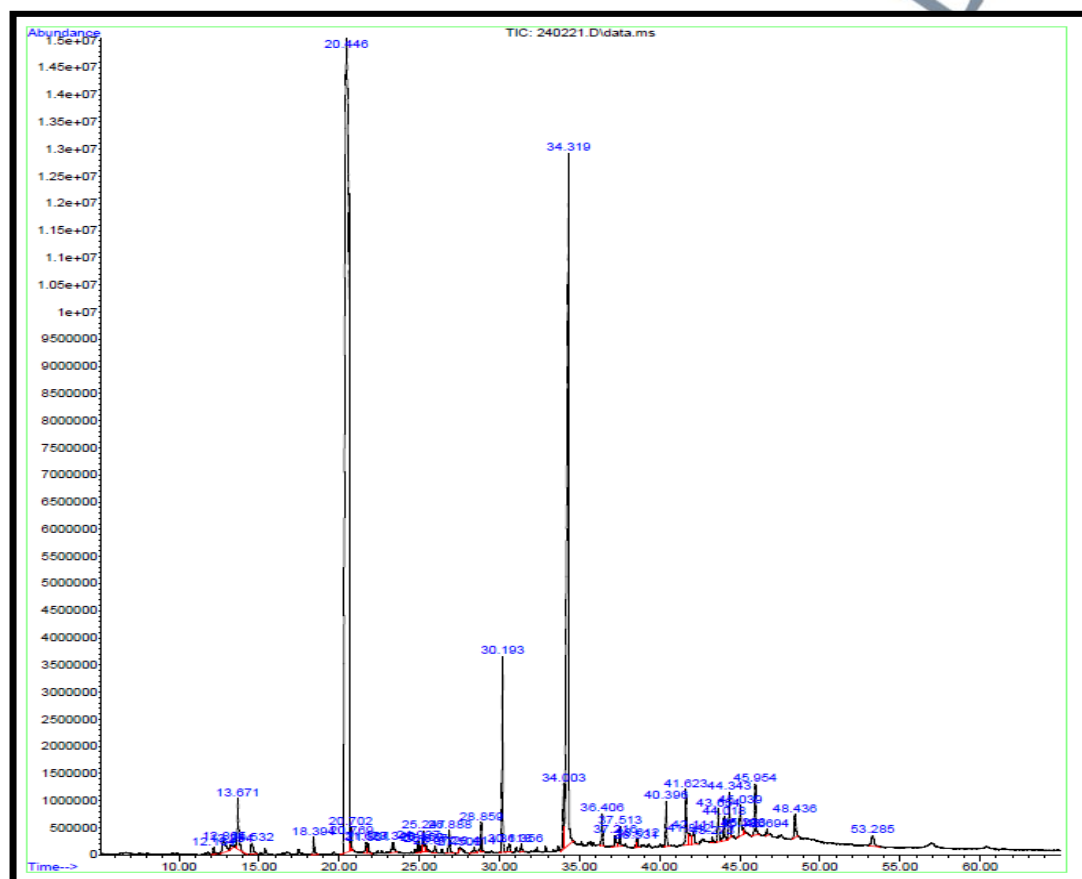
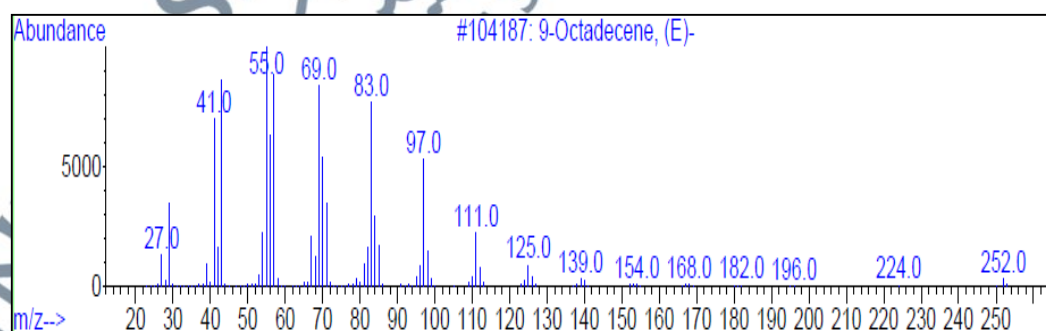
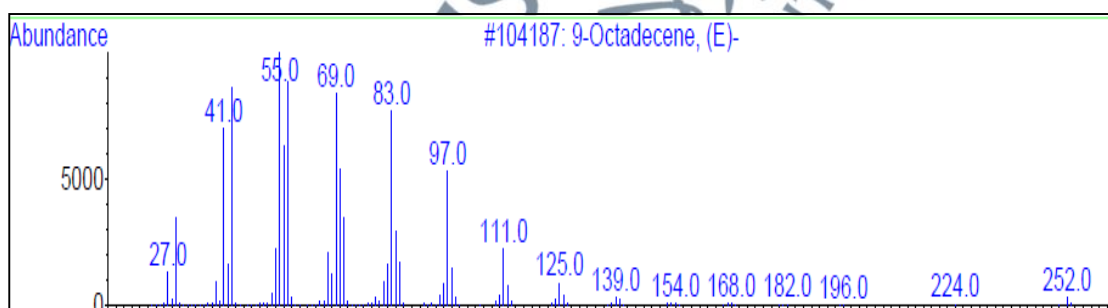
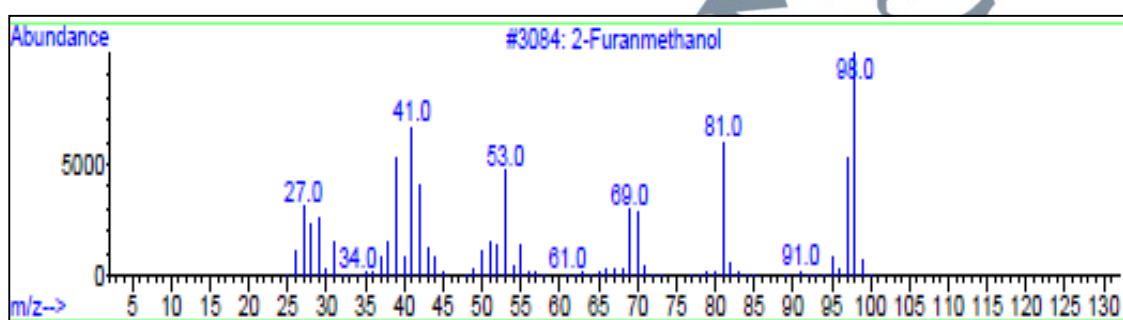
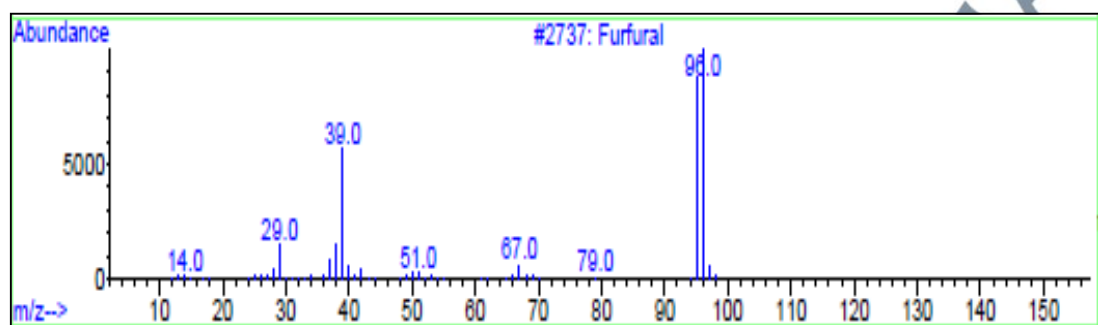


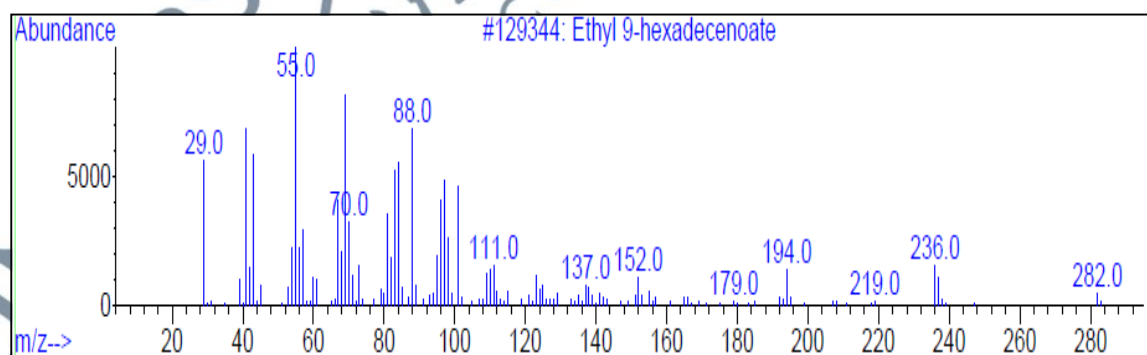
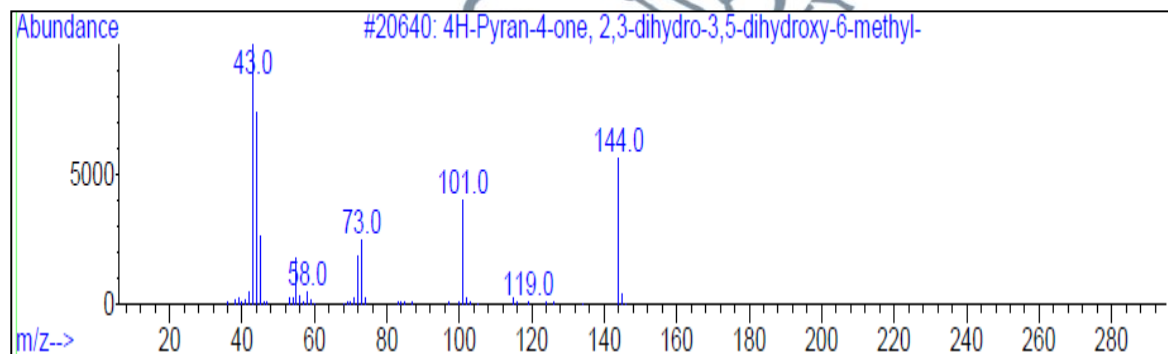
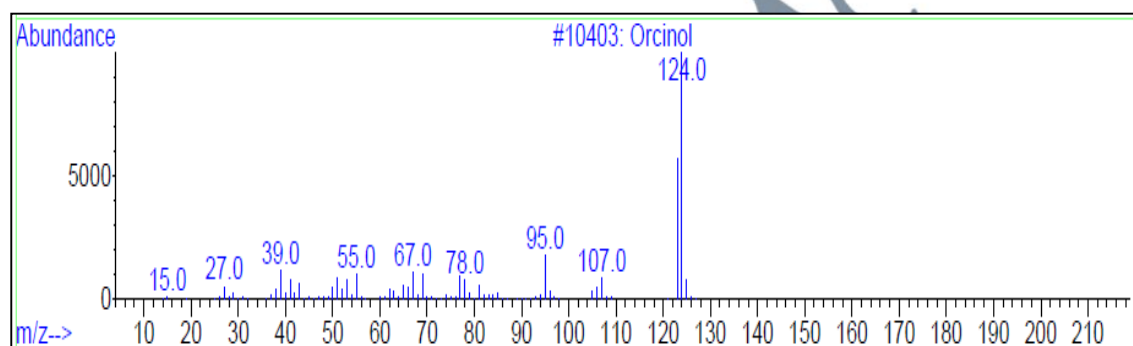
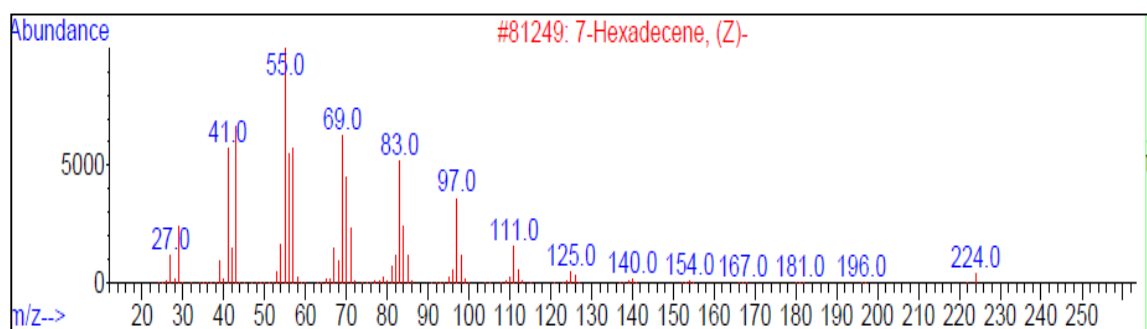
Appendix A

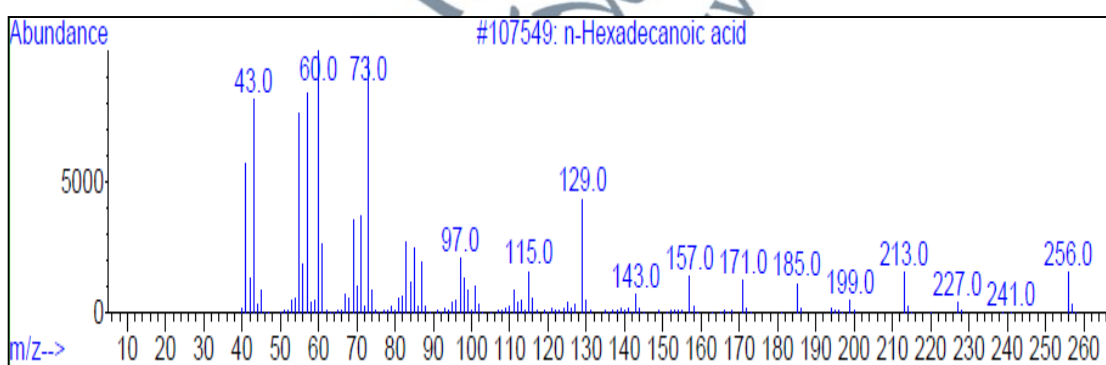
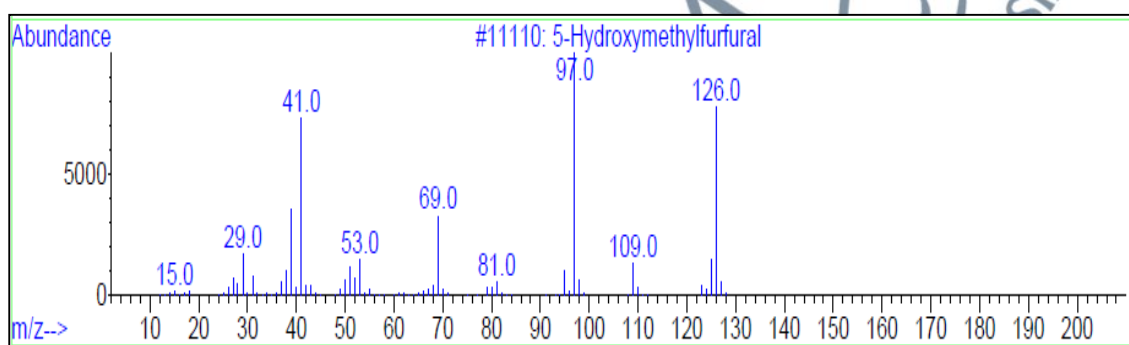
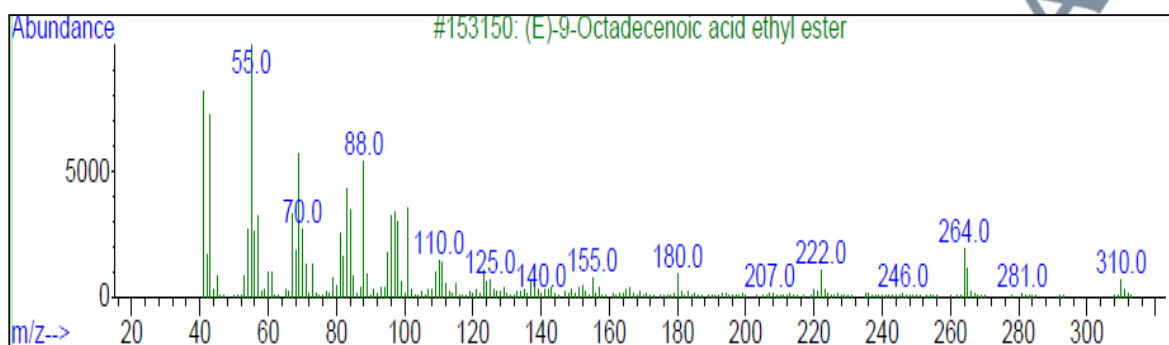
GC-MS Data

FIGURE 17: GC-MS of total compounds in dates fruit sample extracted with Methanol









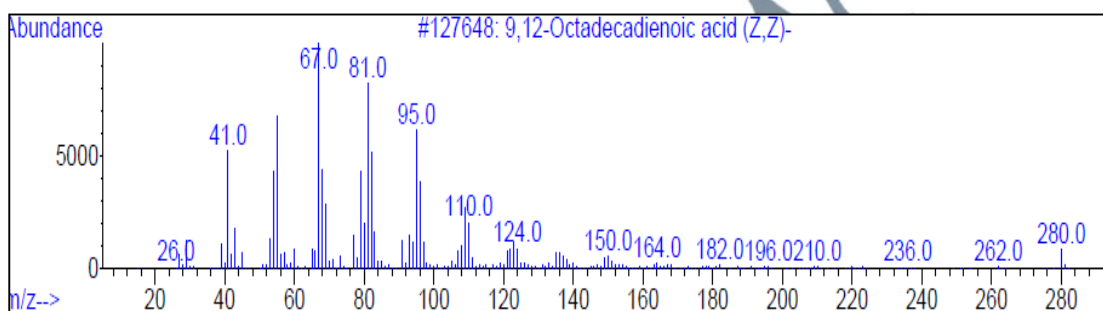
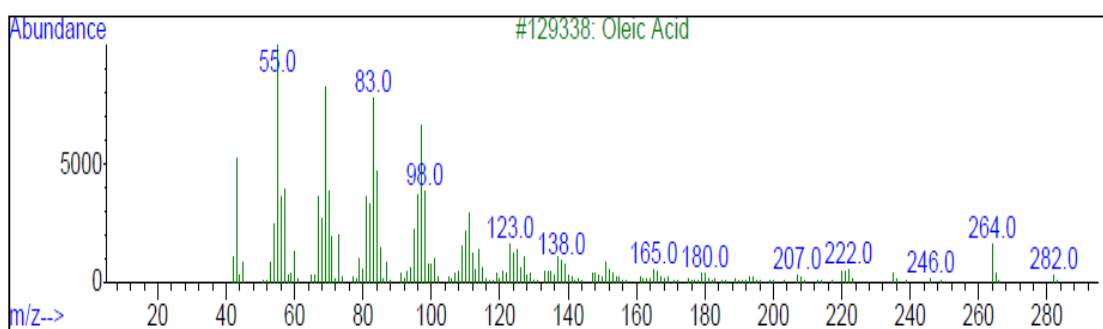
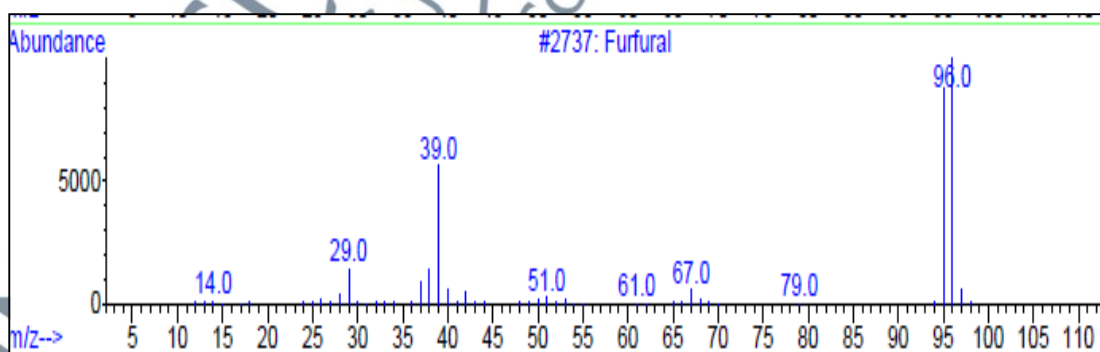
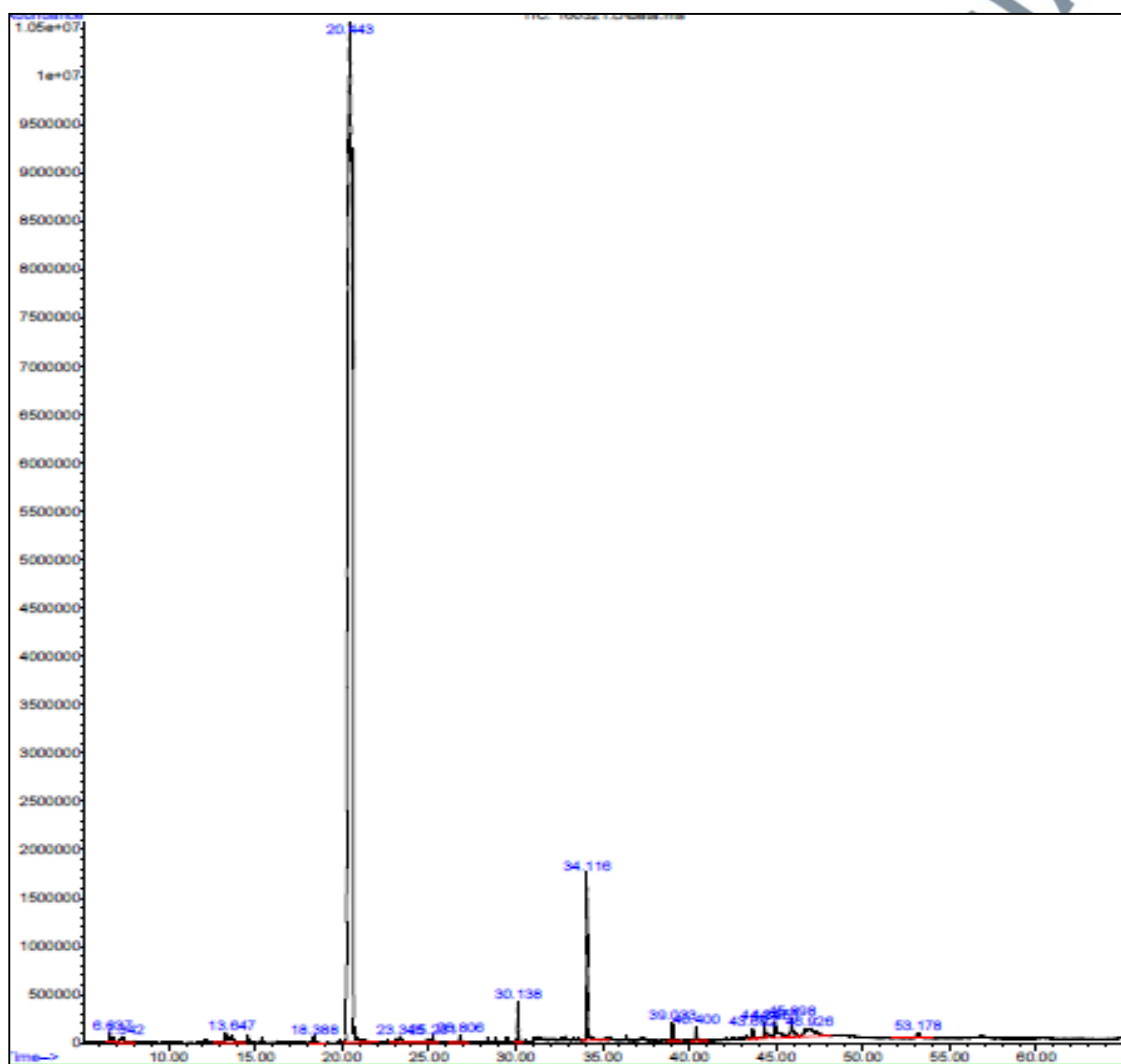
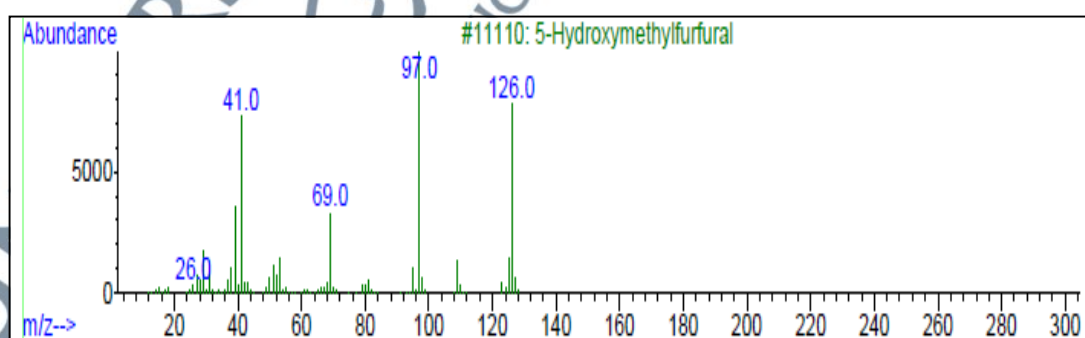
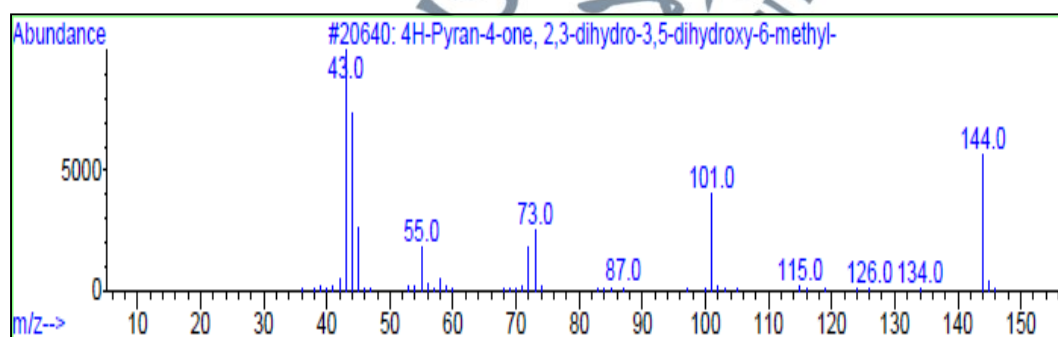
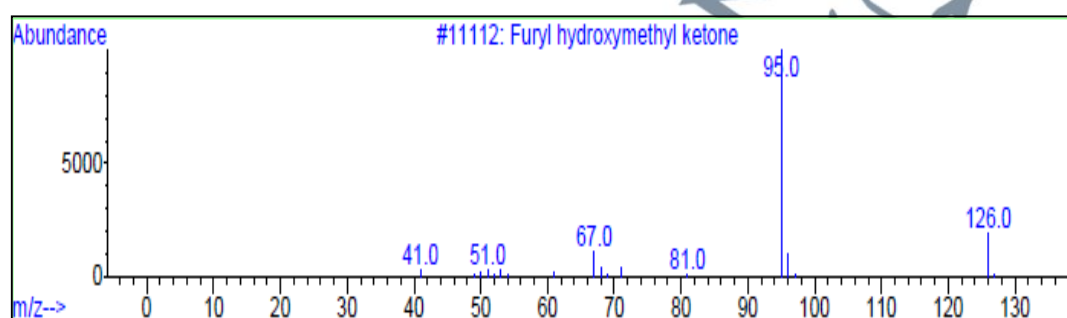
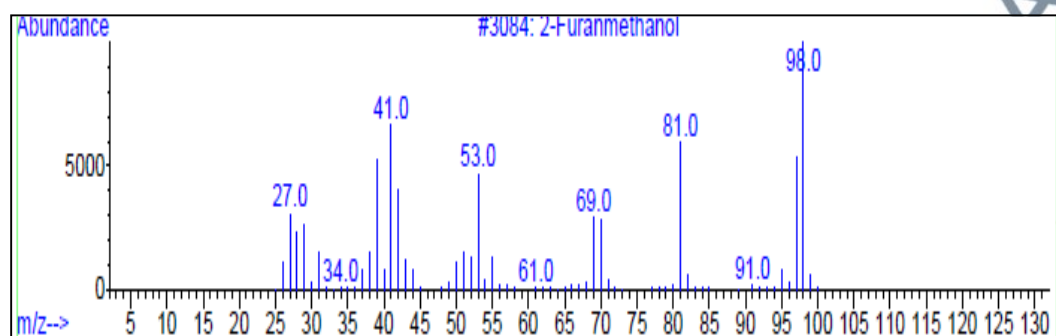


FIGURE 81: GC-MS of total compounds in dates fruit sample extracted with Chloroform





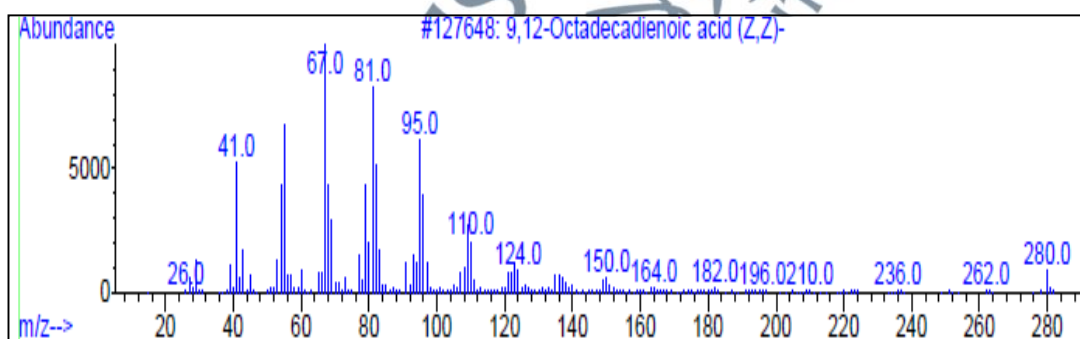
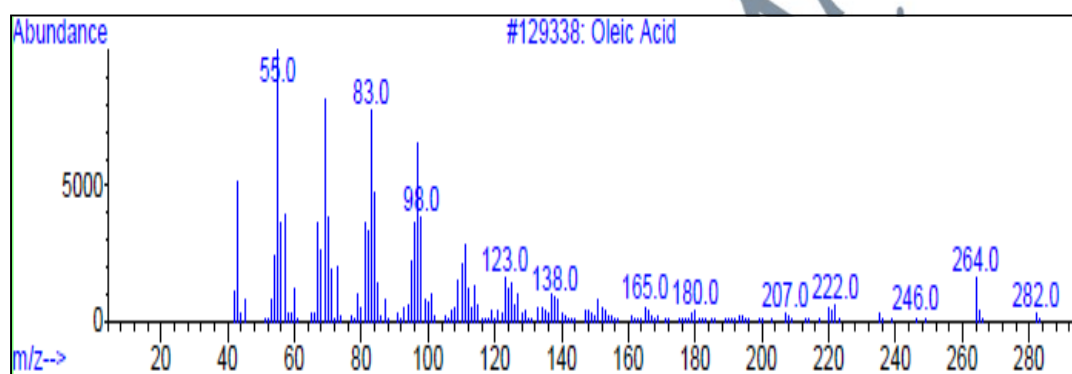
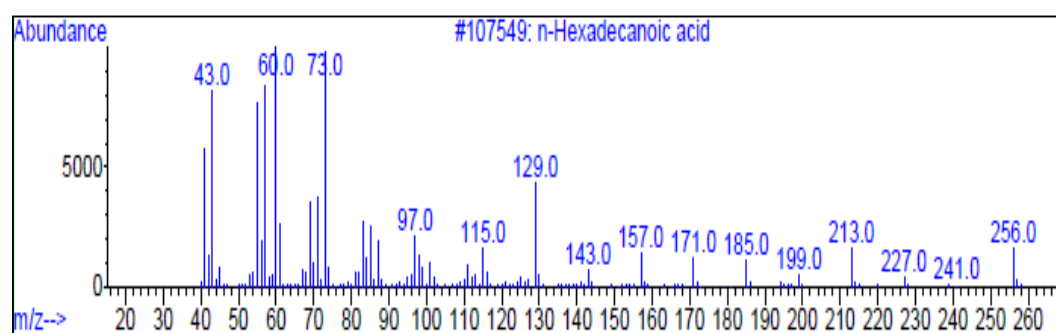


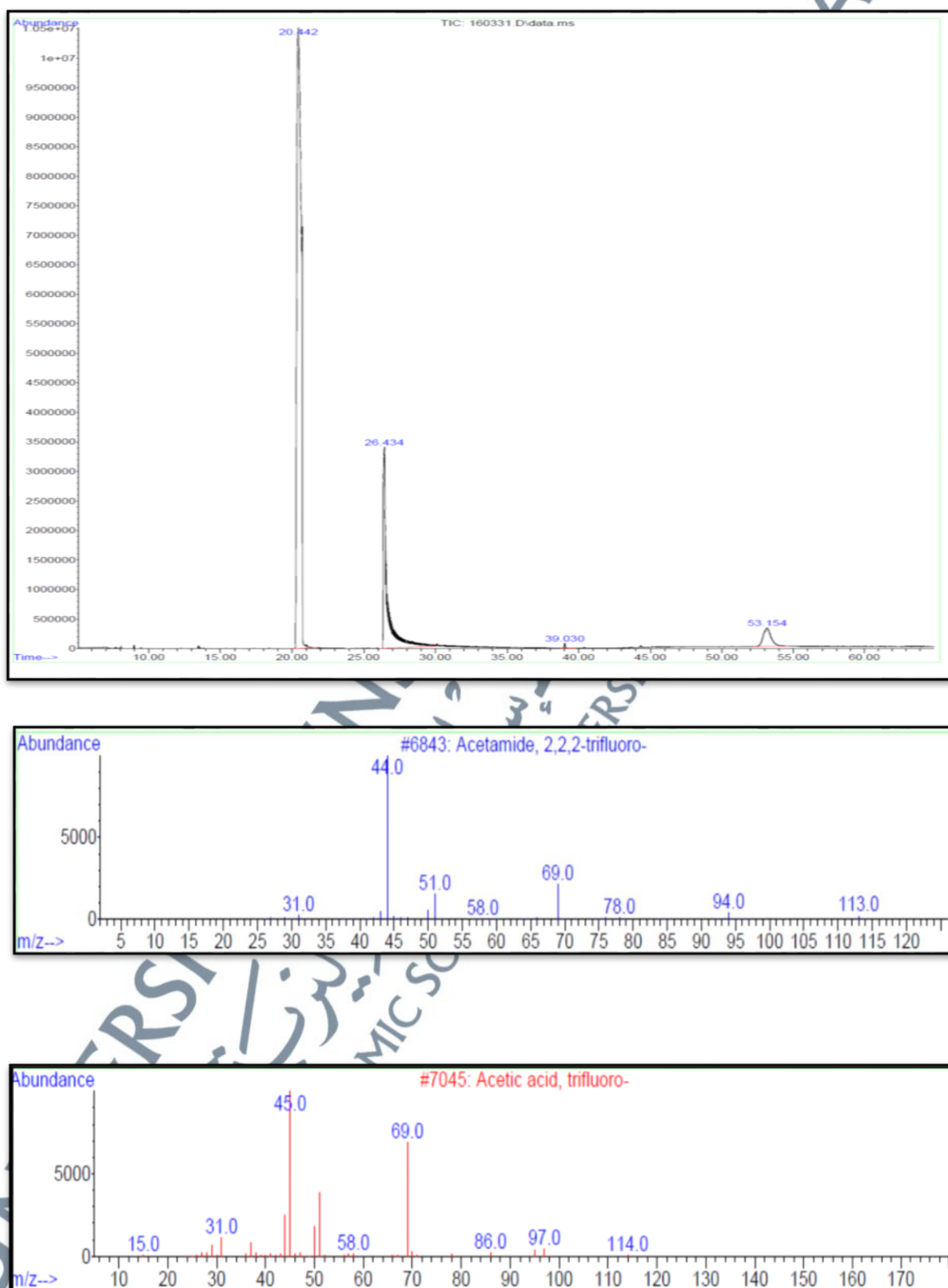
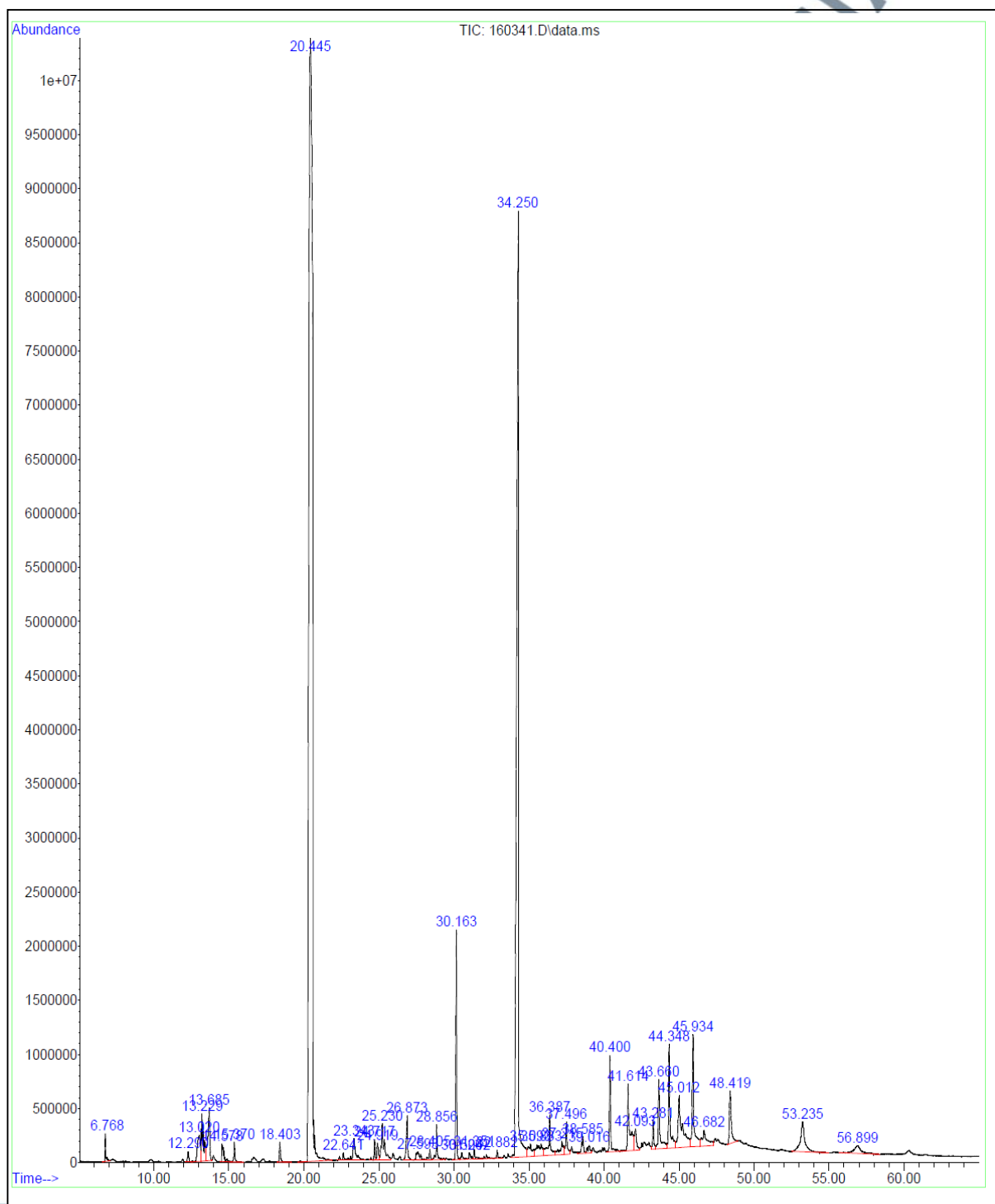
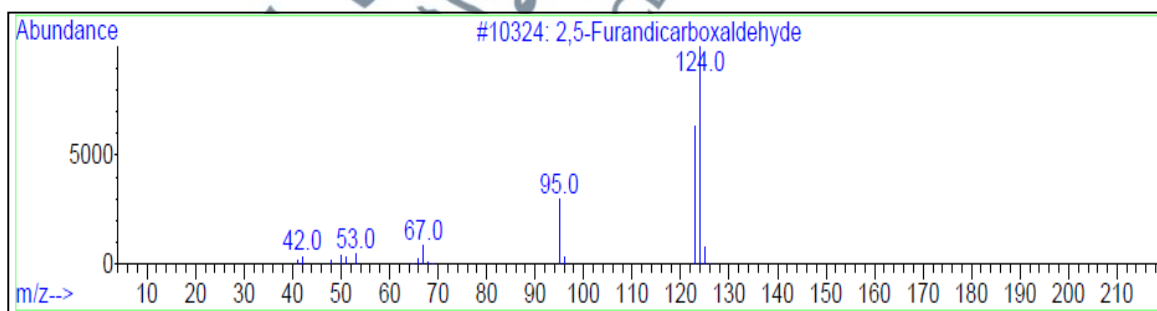
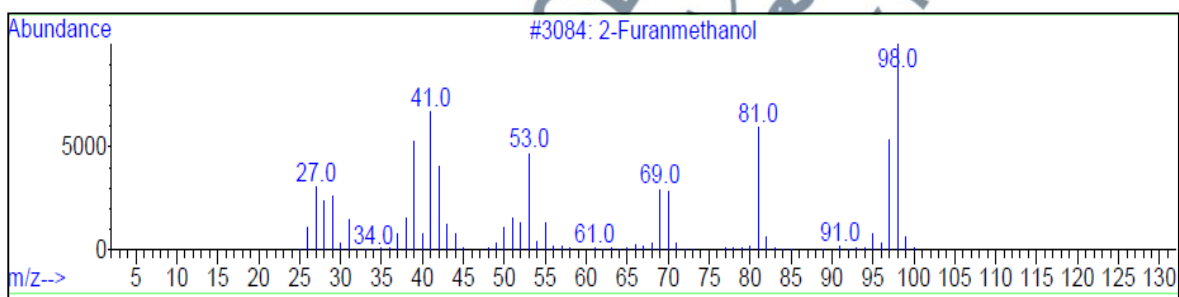
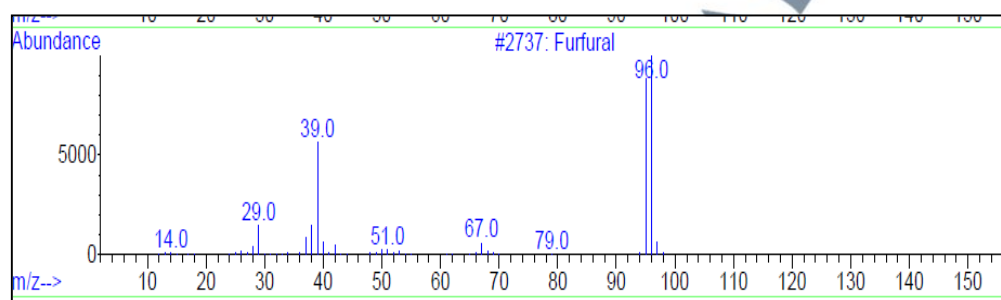
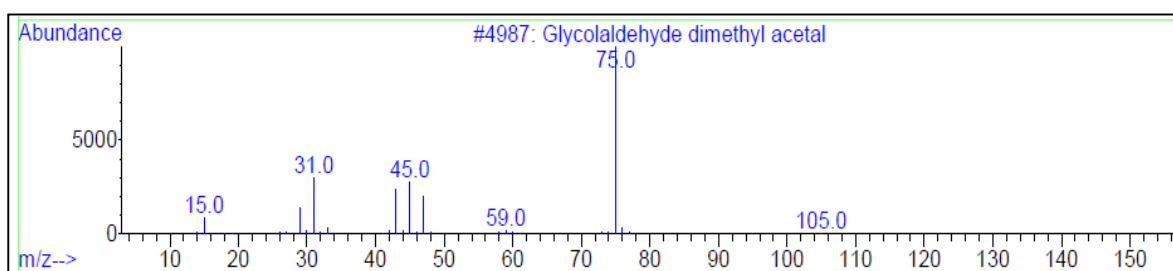
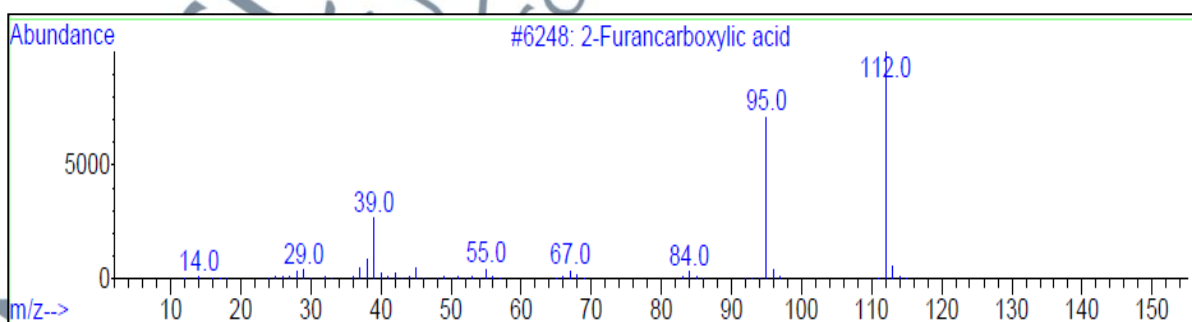
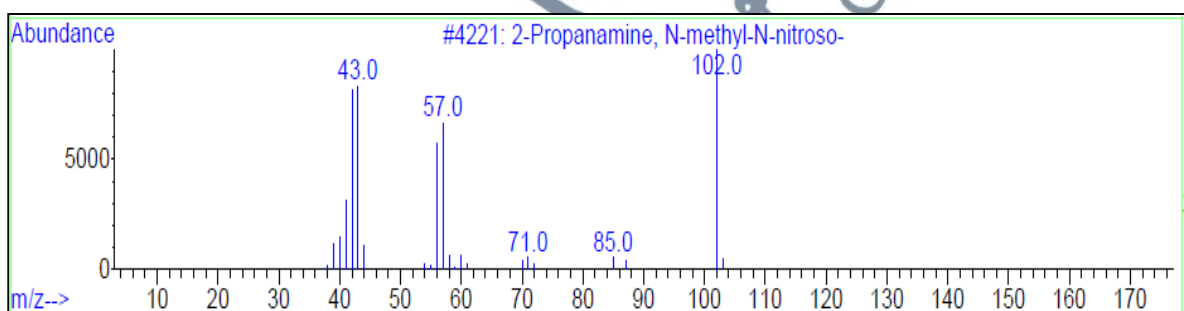
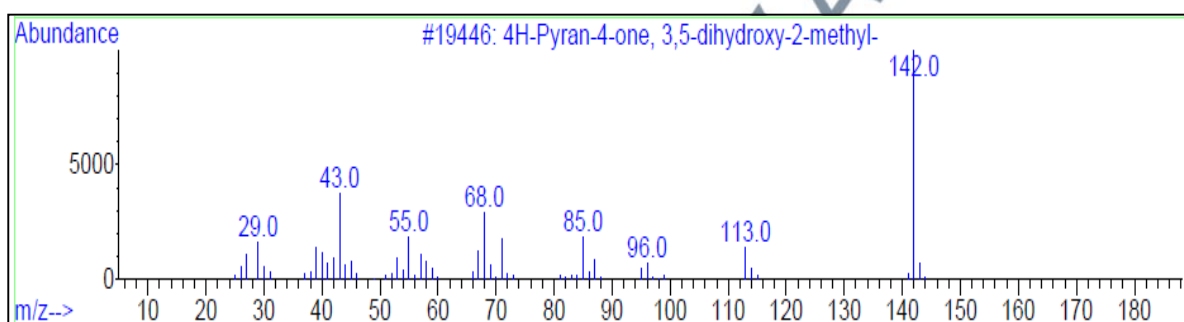
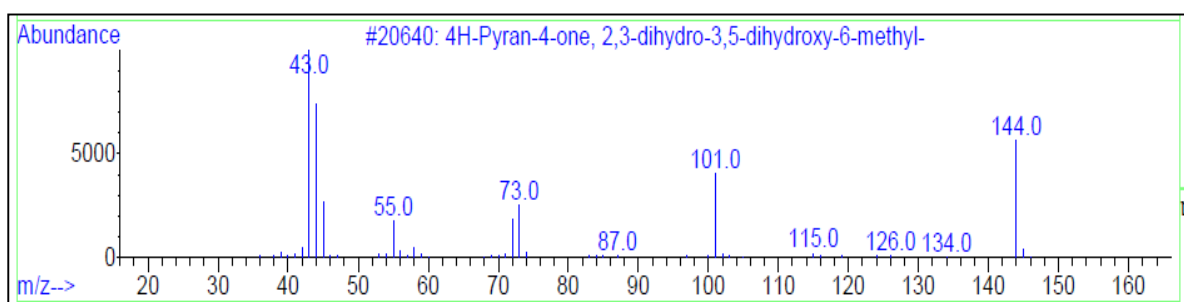
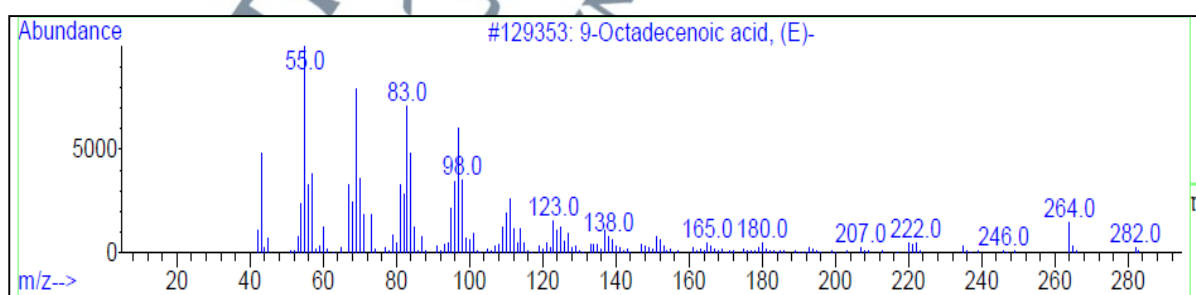
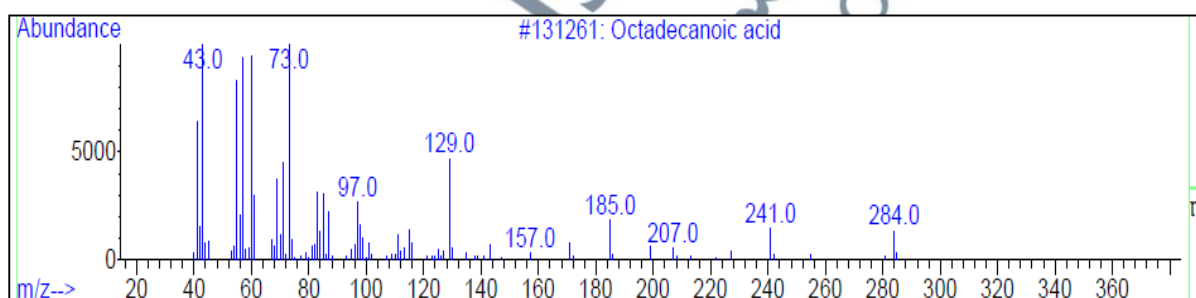
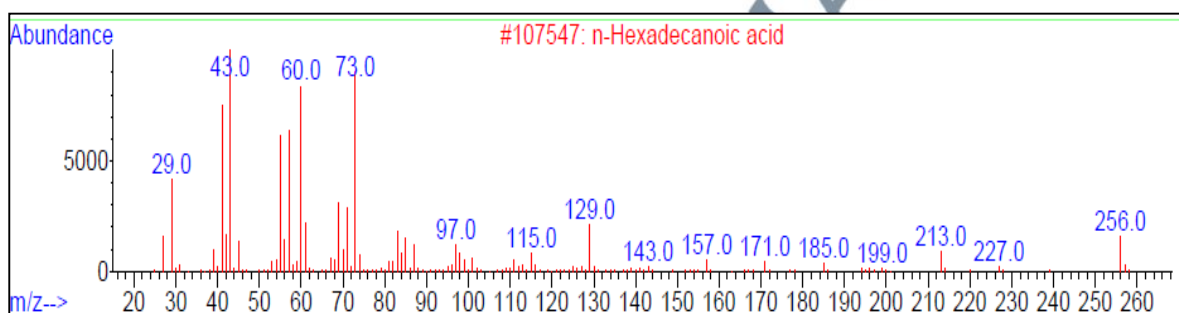
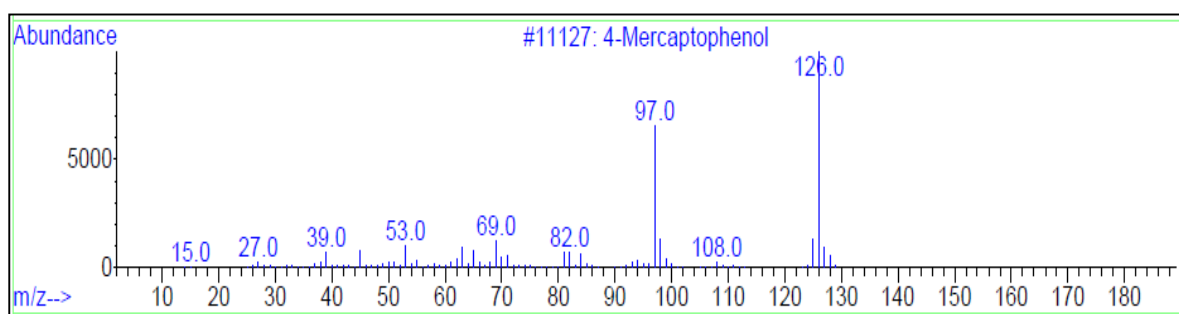
FIGURE 19: GC-MS of total compounds in date fruits sample extracted with Hexane

FIGURE 20: GC-MS of total compounds in dates fruit sample extracted with Methanol - Chloroform (70 %- 30 %)









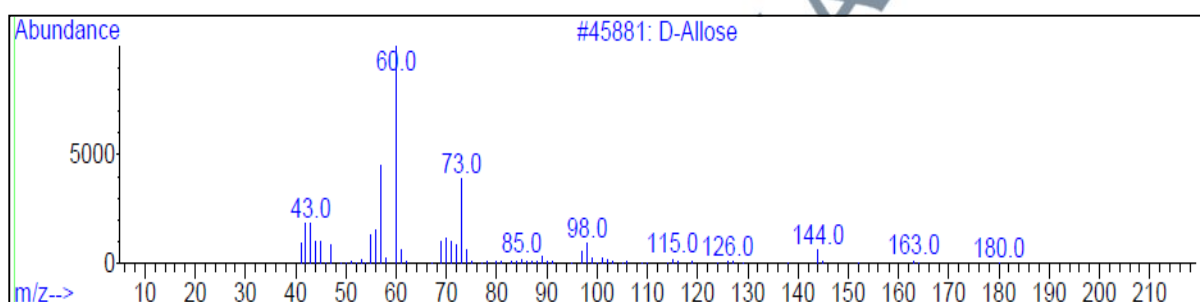
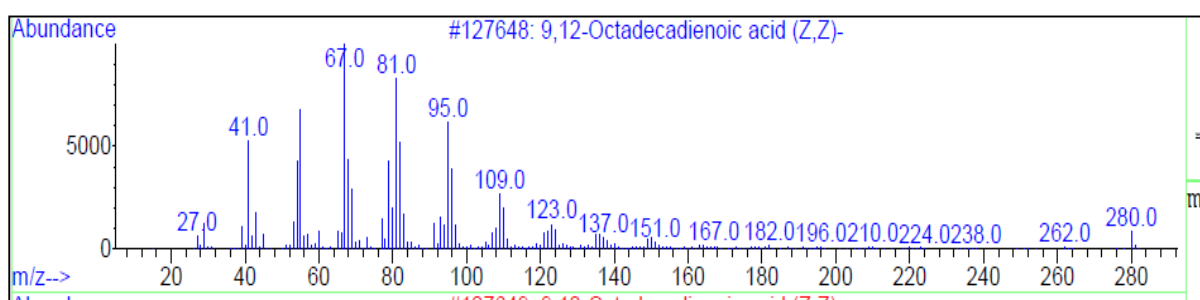
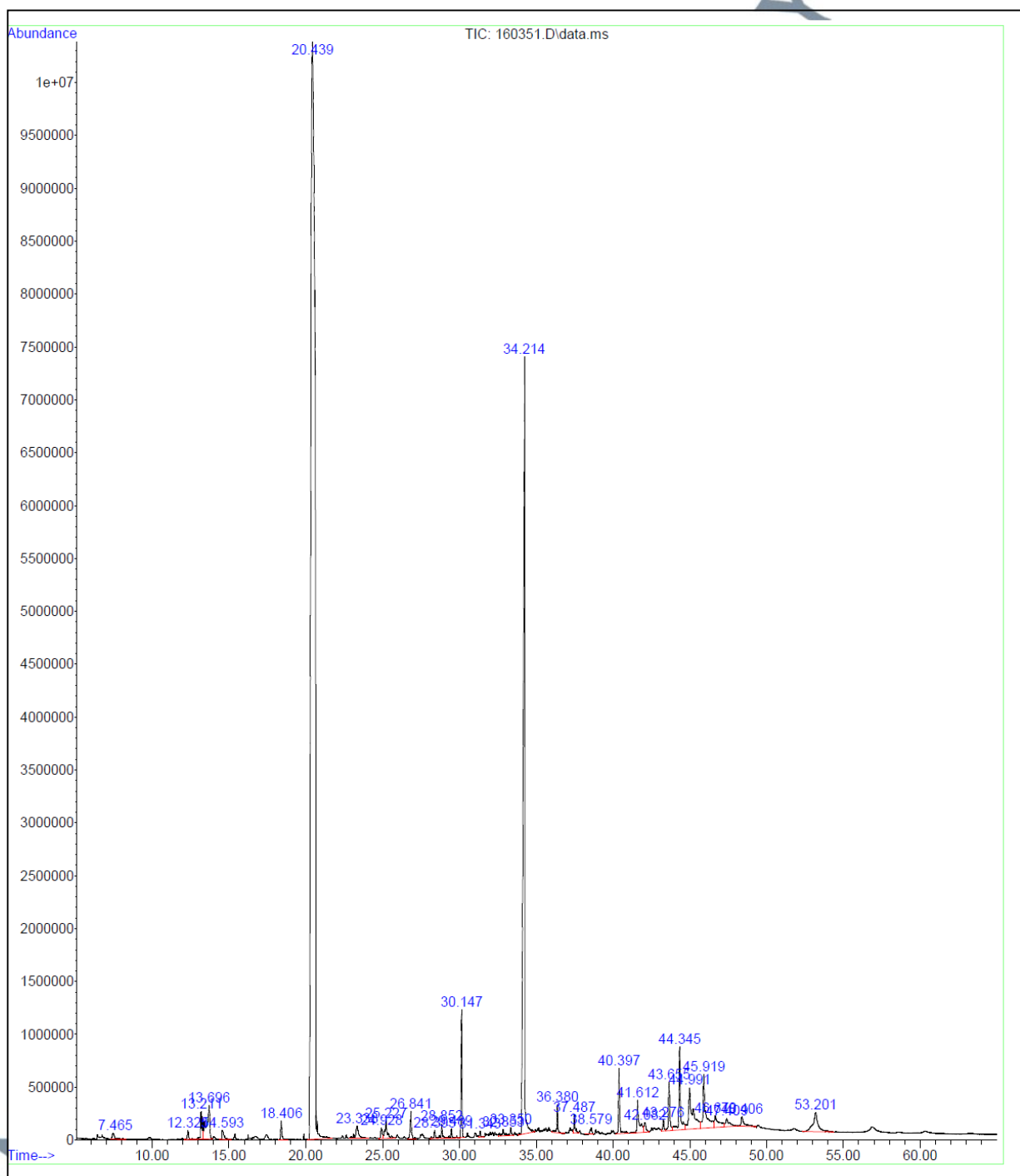
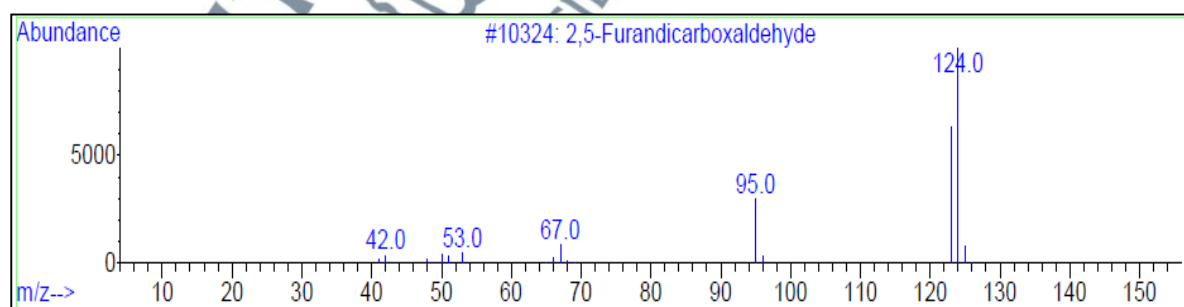
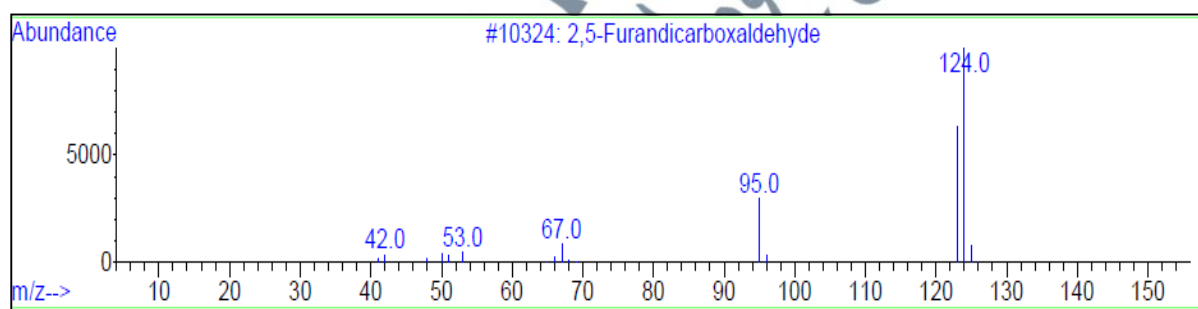
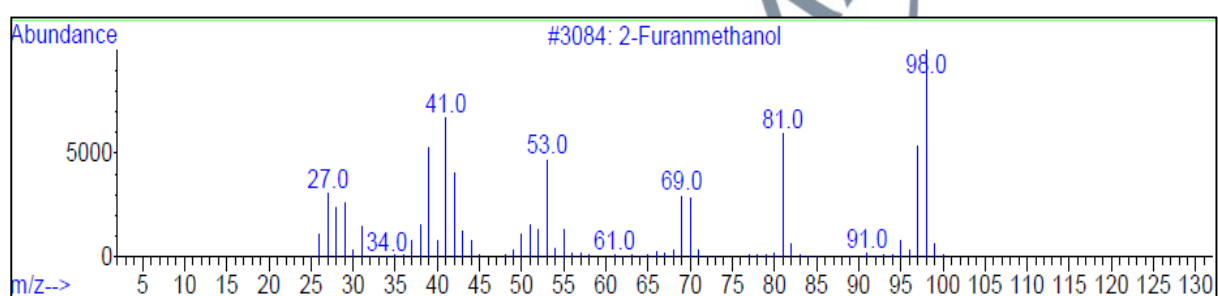
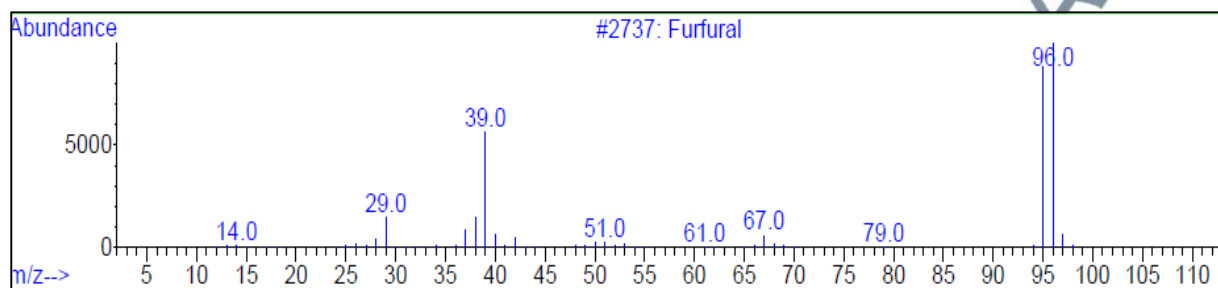
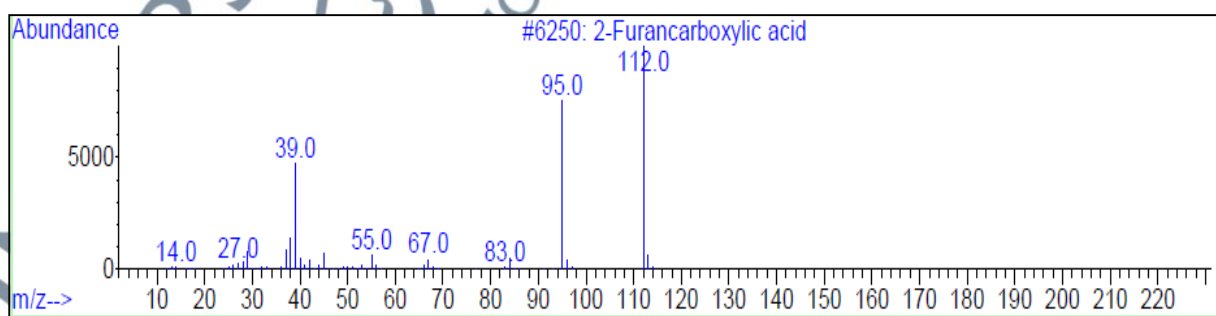
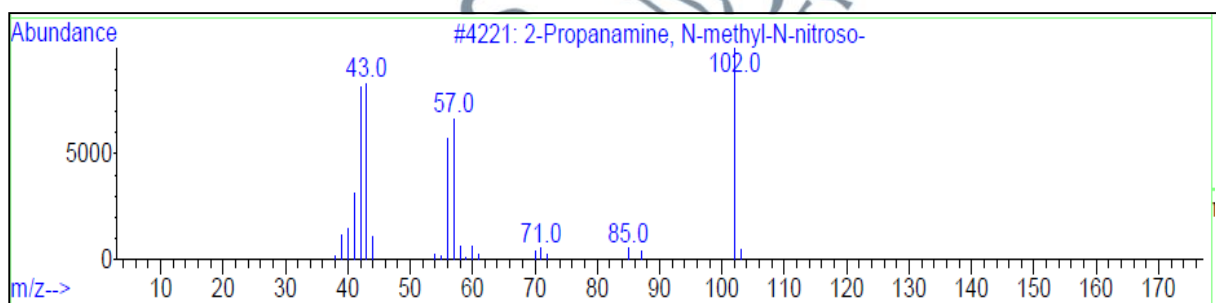
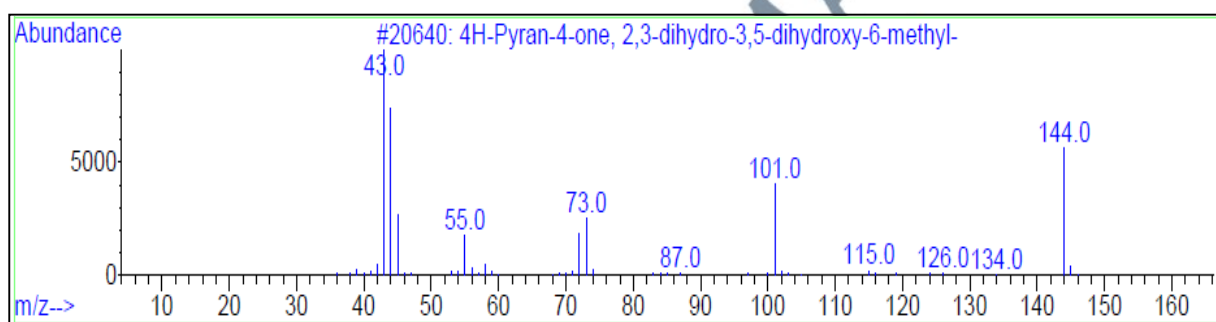
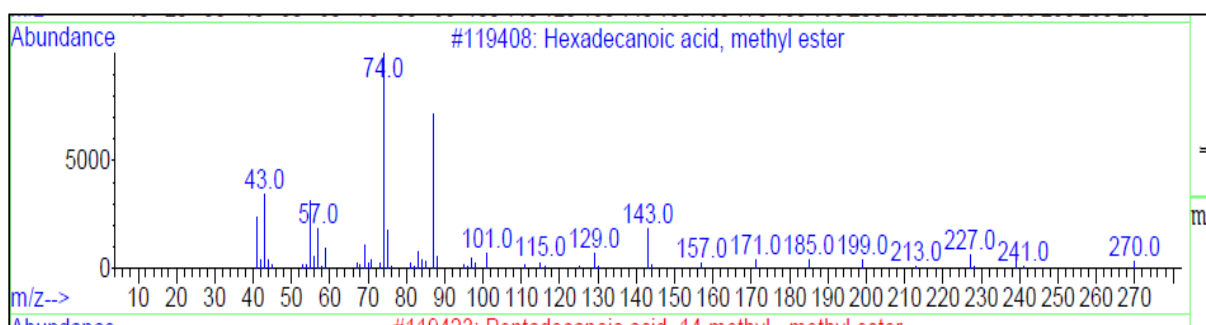
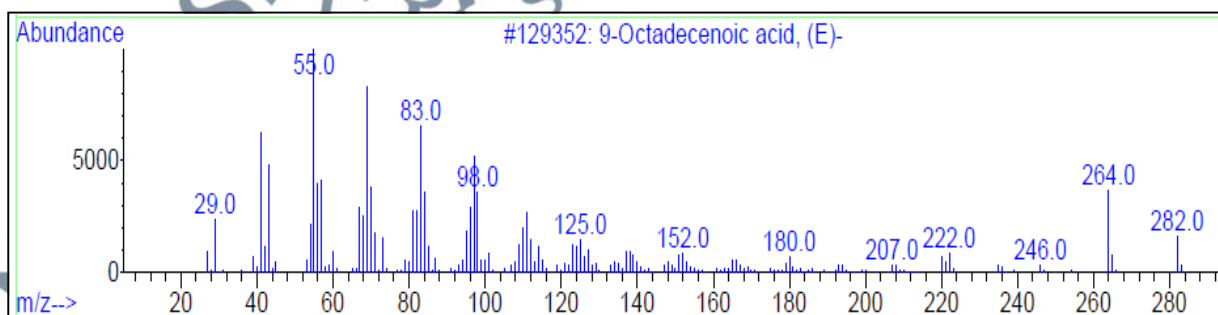
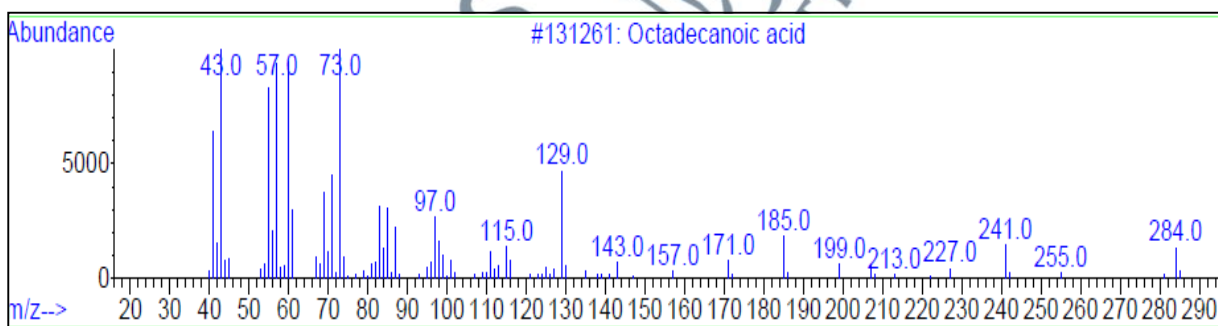
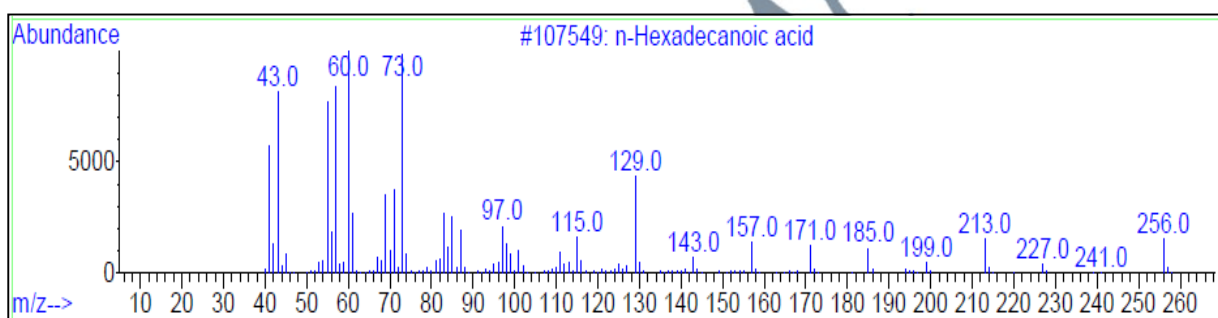
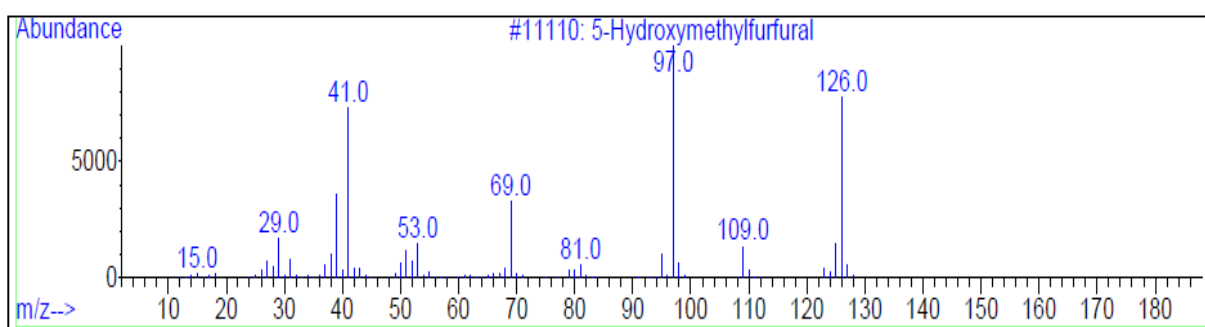


FIGURE 21: GC-MS of total compounds in dates sample extracted with combination of three solvents together









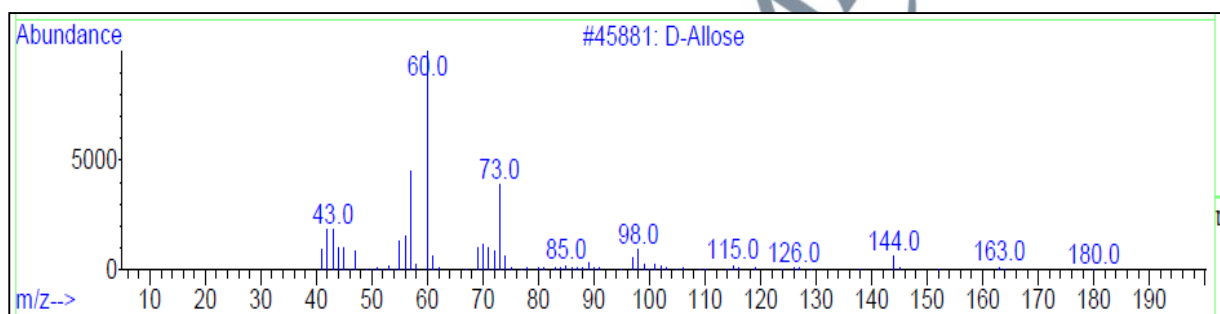
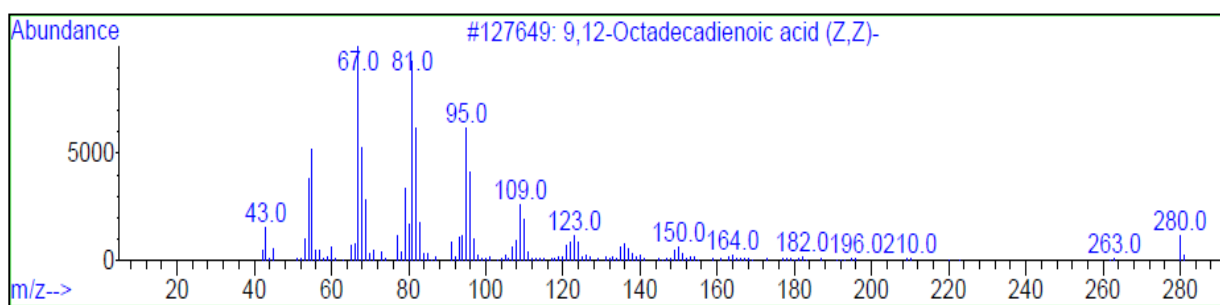
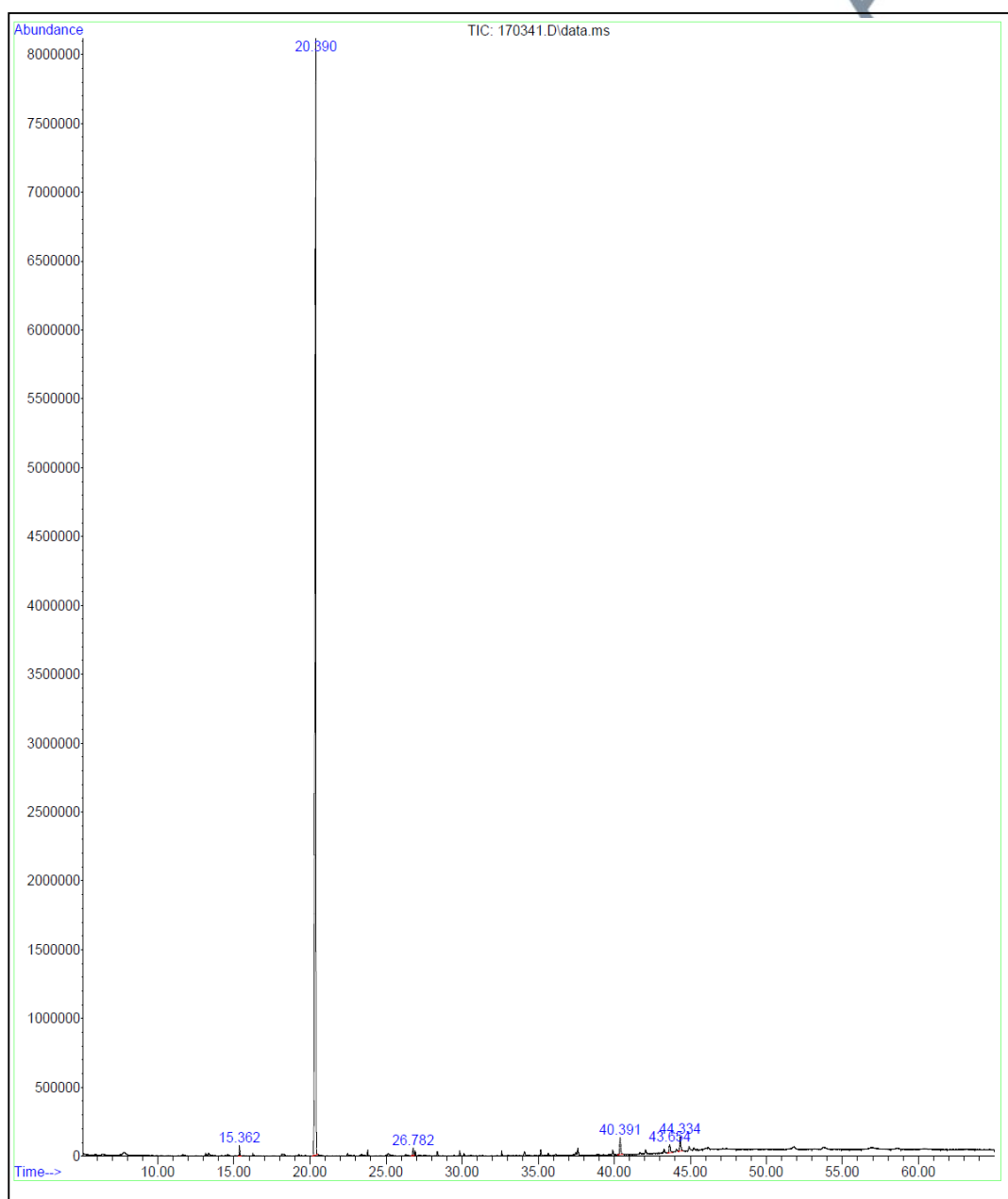


FIGURE 22: GC-MS of total compounds in dates fruit sample extracted with Chloroform; Hexane (70 %- 30 %)



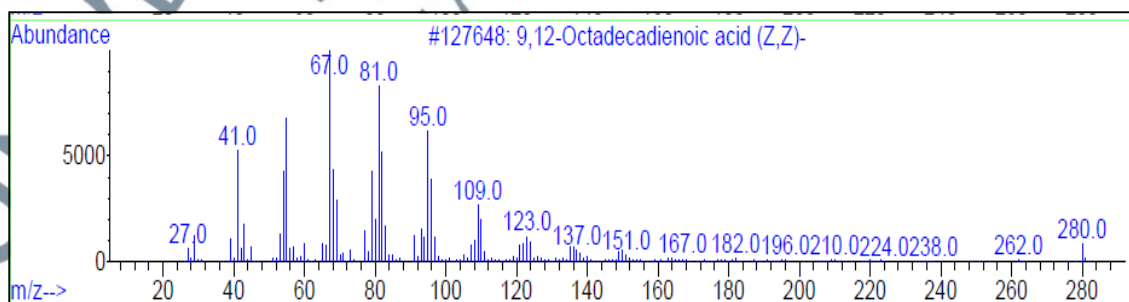
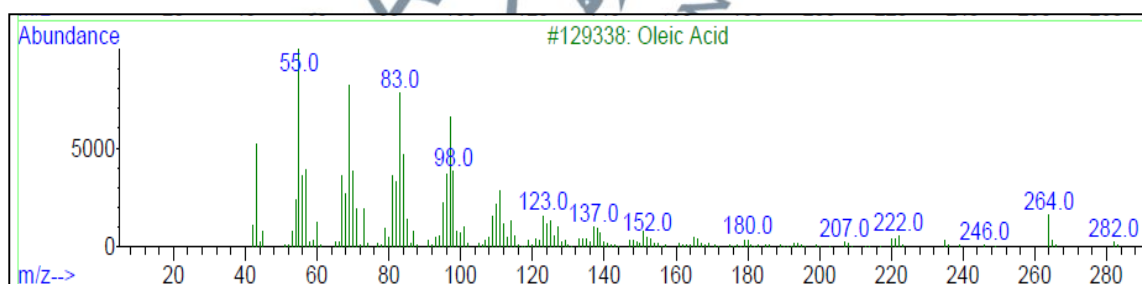
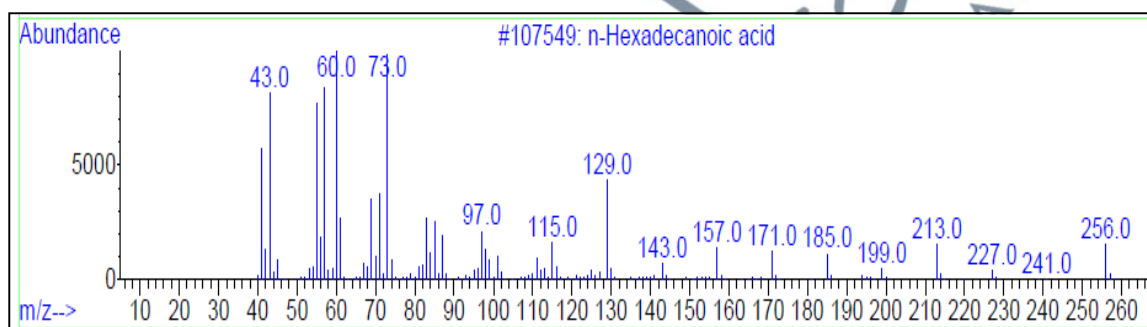
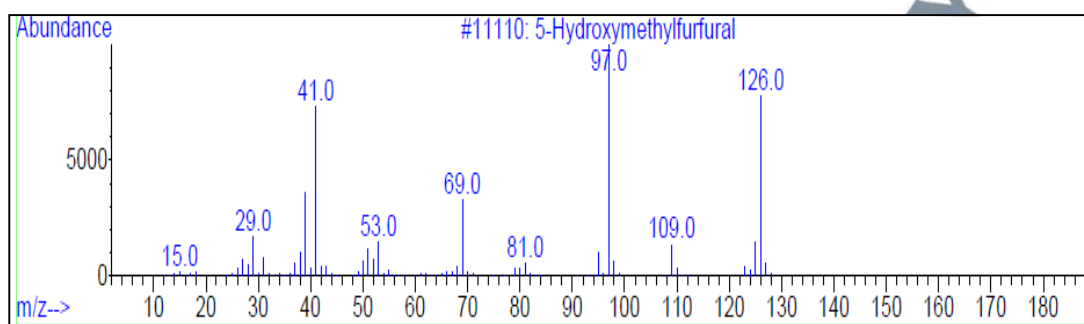
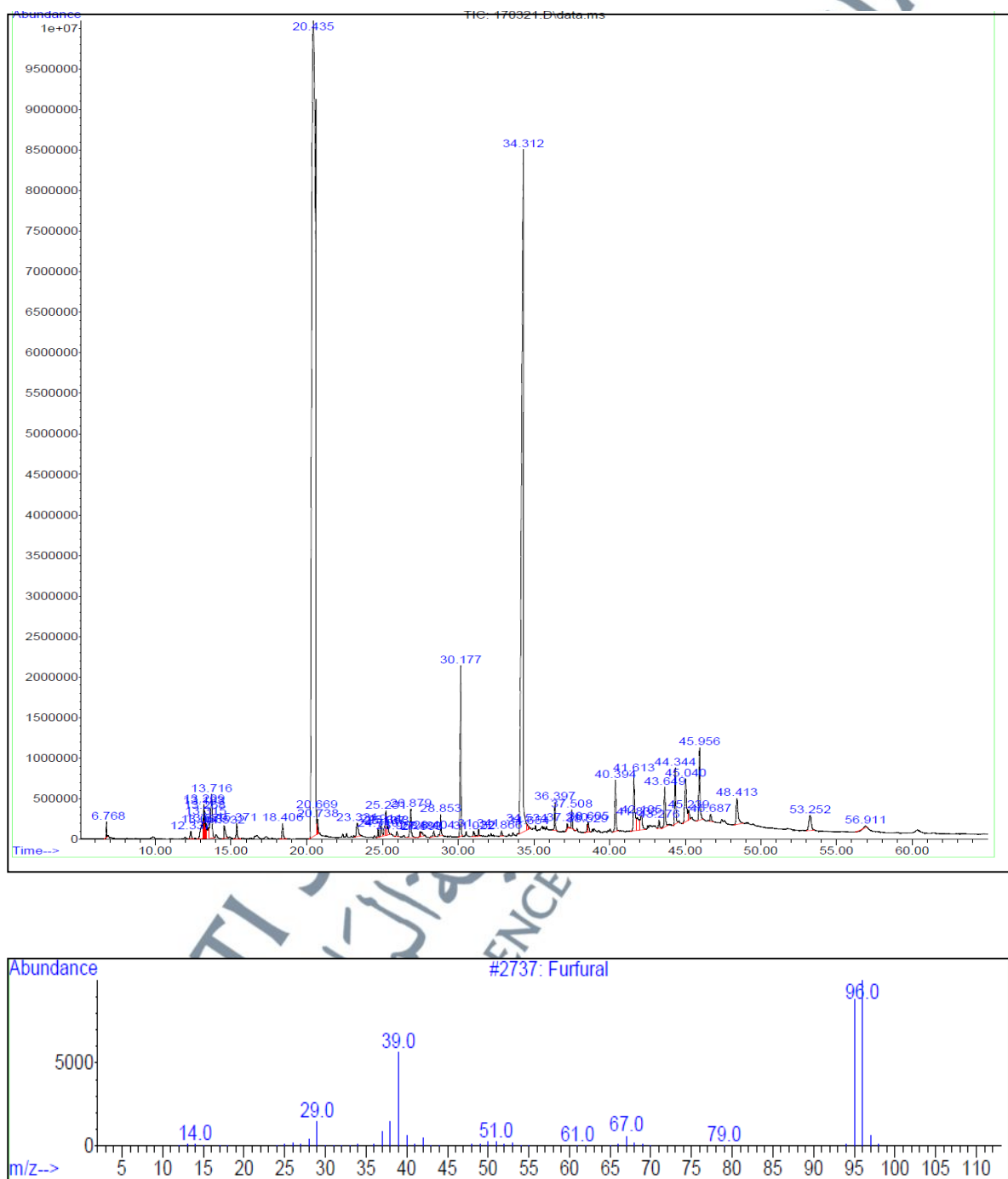
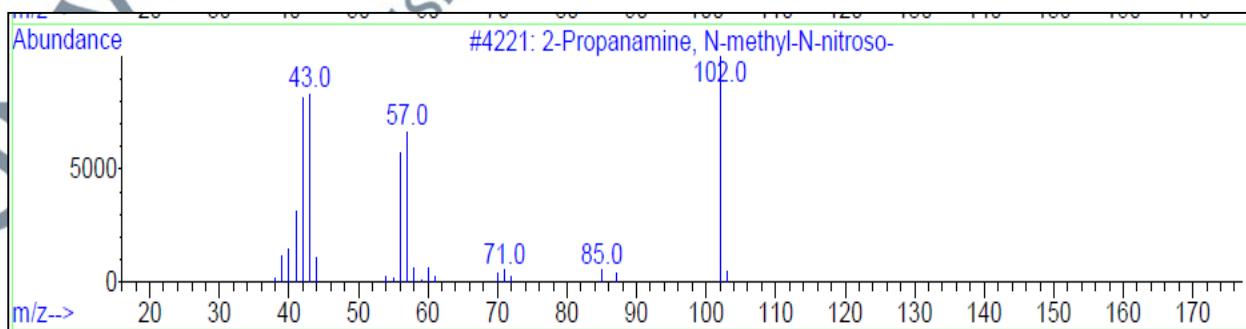
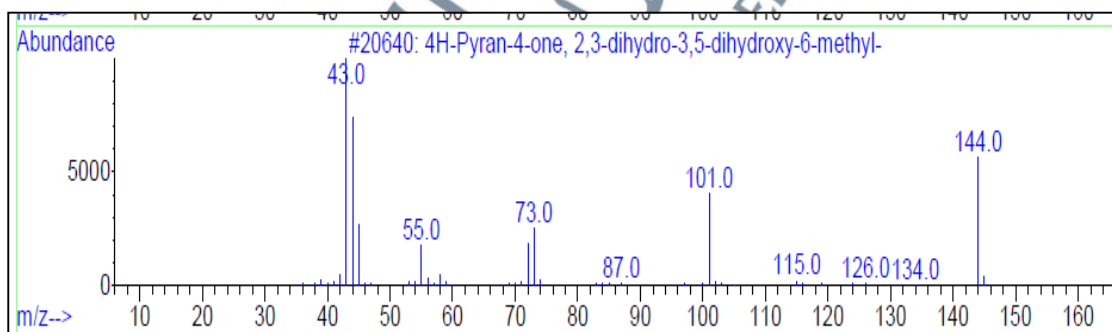
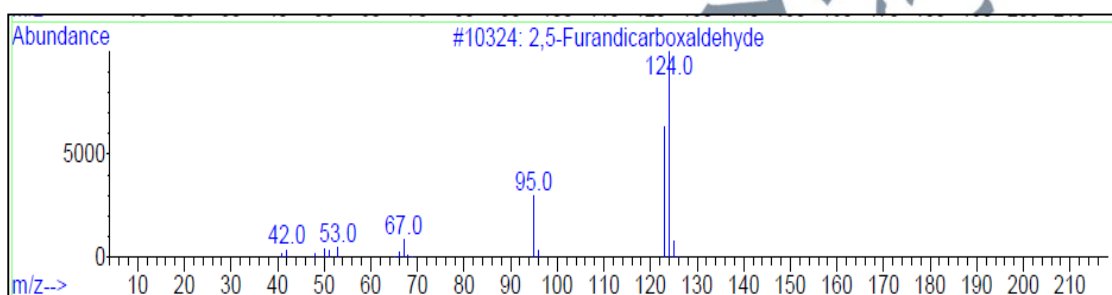
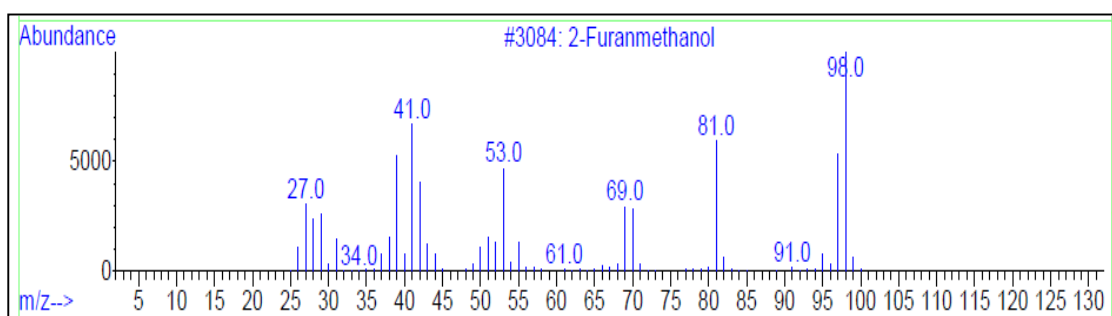
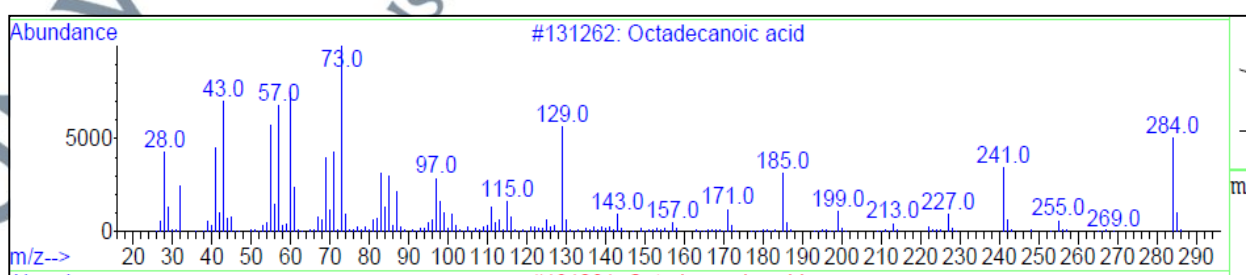
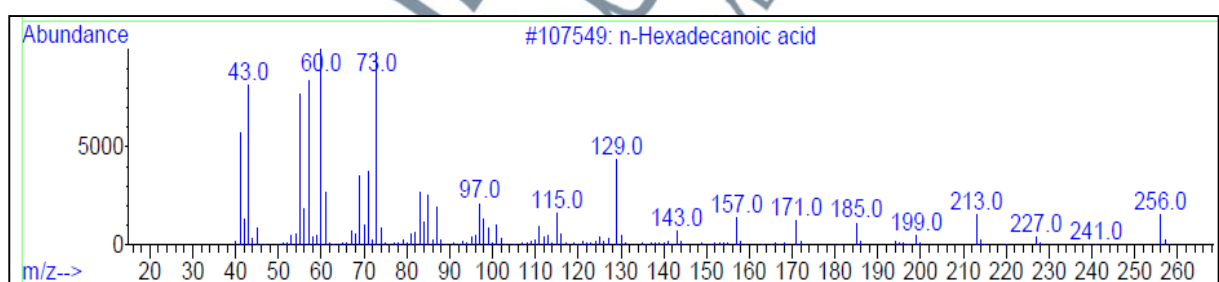
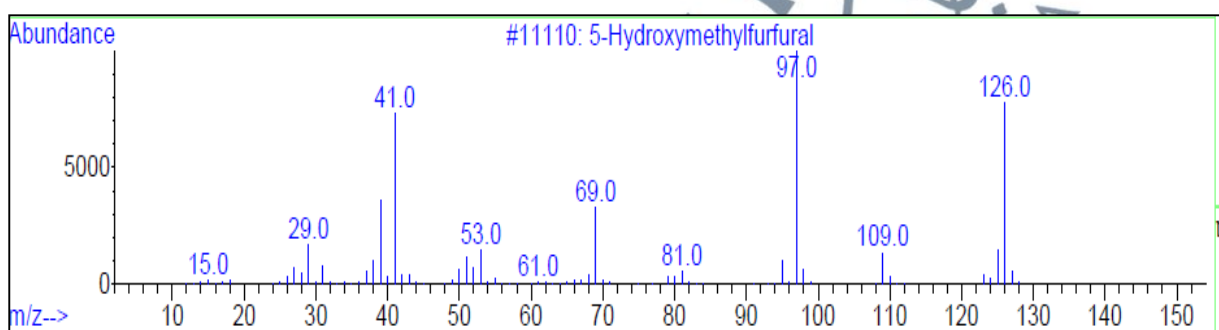
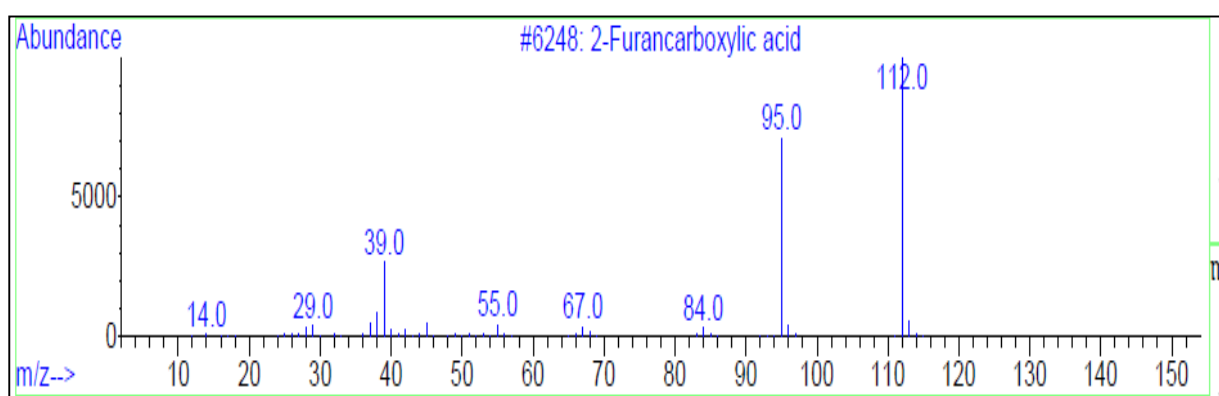


FIGURE 23: GC-MS of total compounds in date fruits sample extracted with Methanol; Hexane (70 %- 30 %)







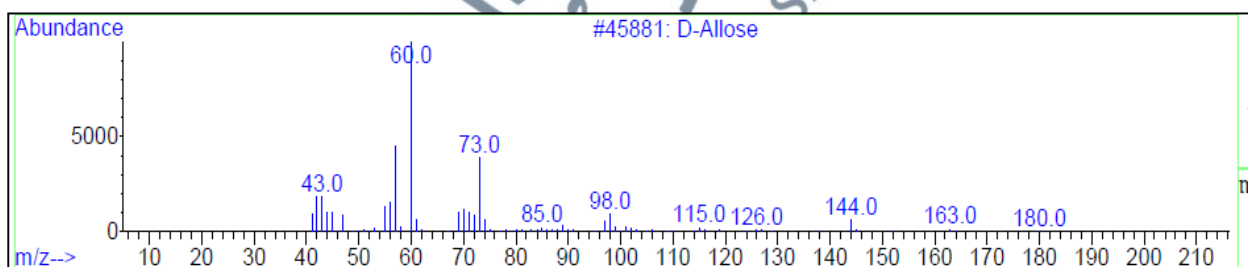
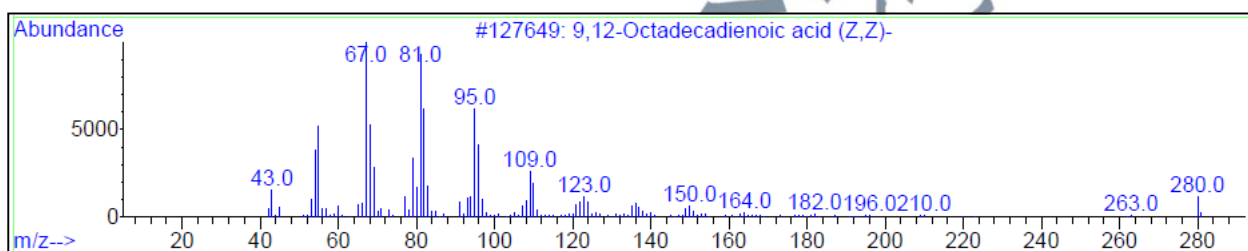
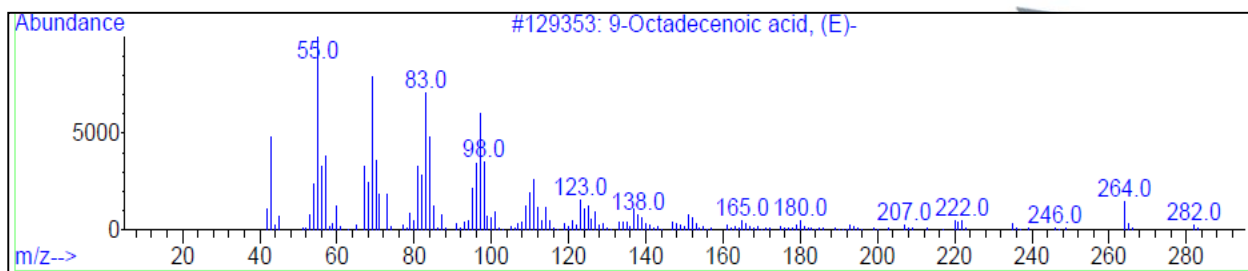
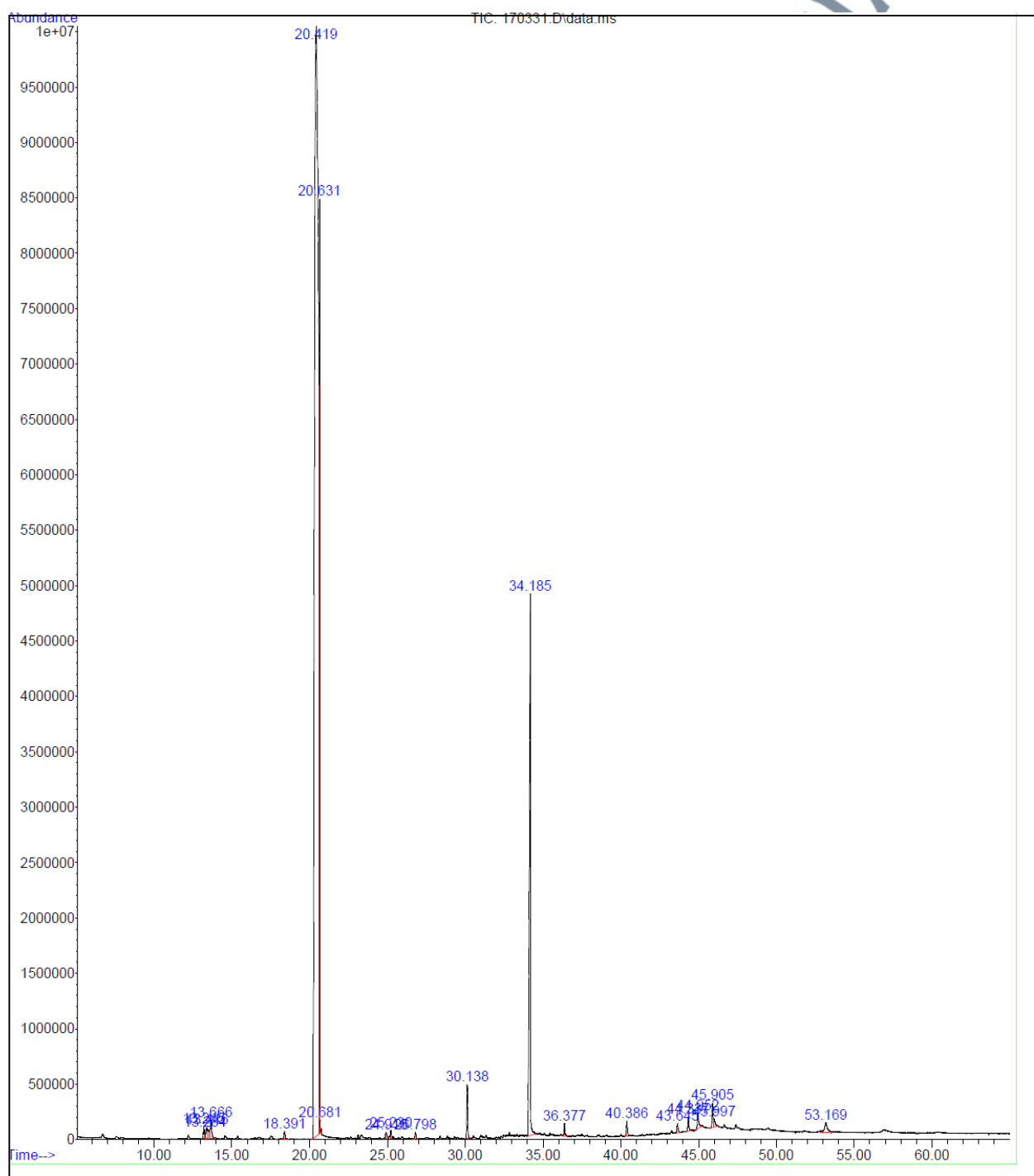
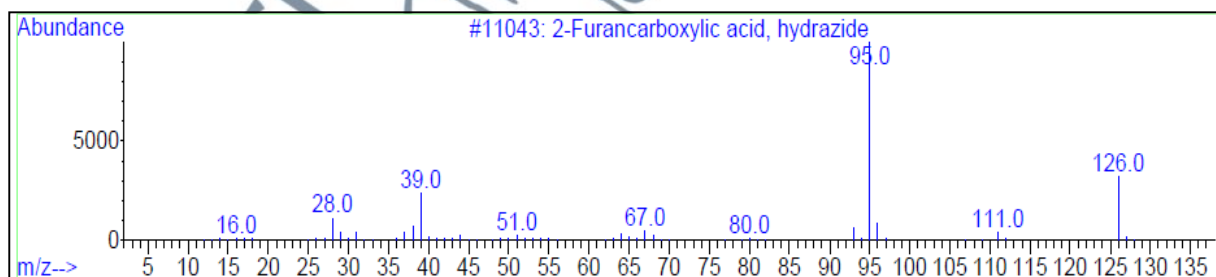
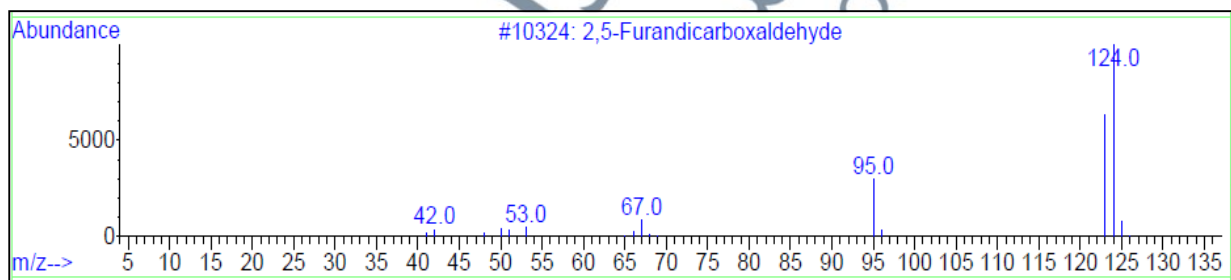
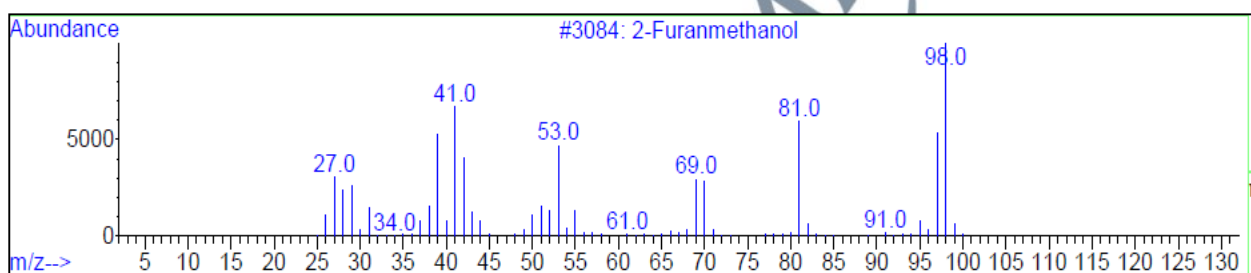
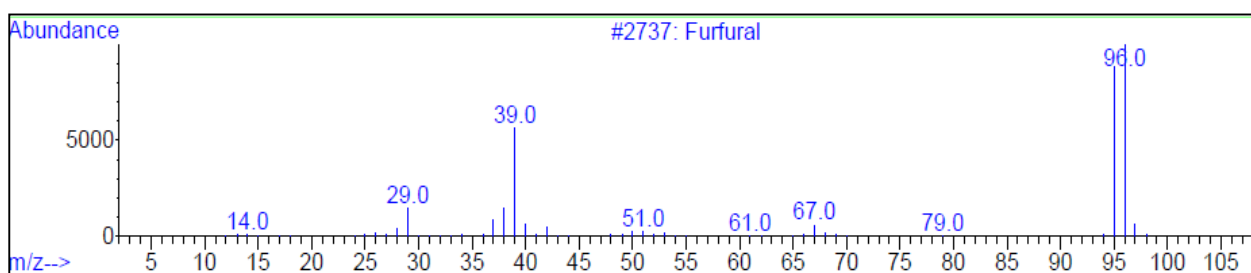
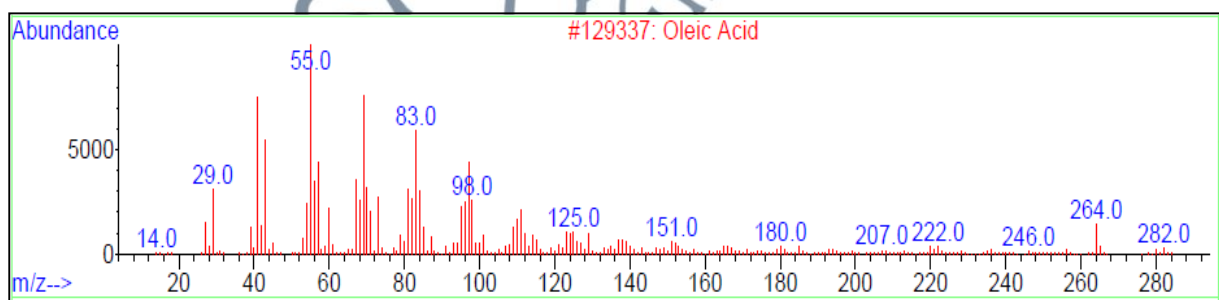
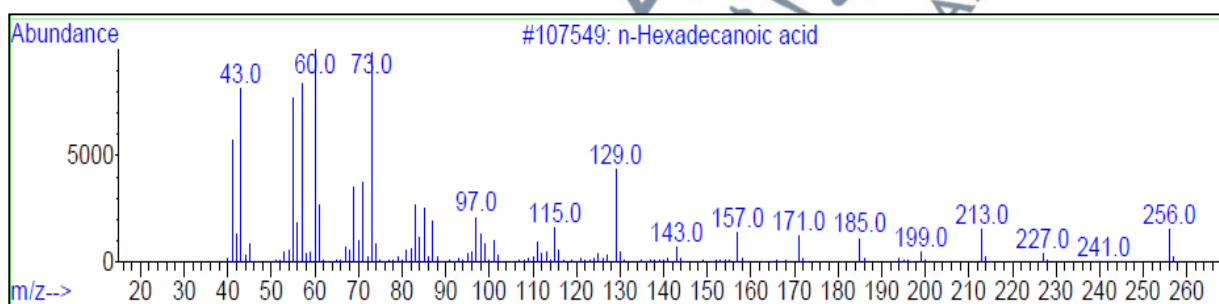
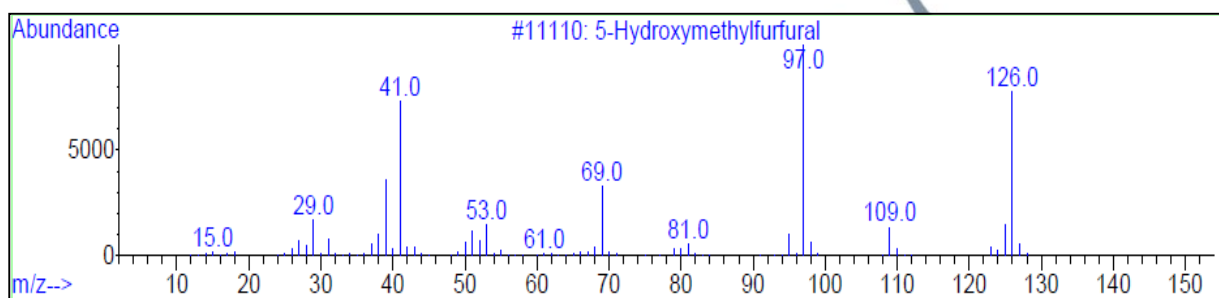
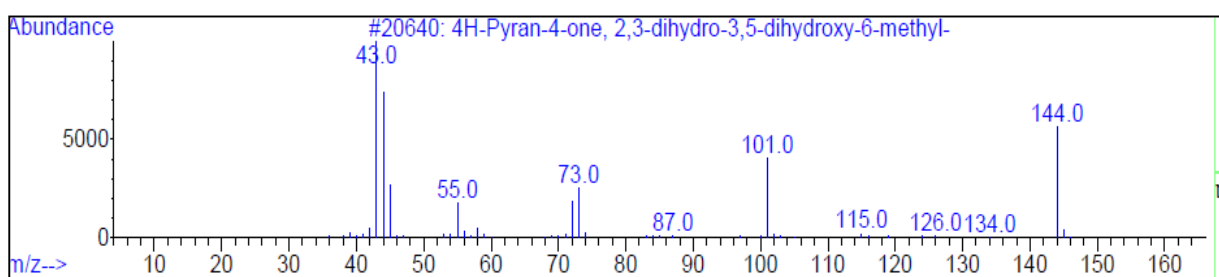
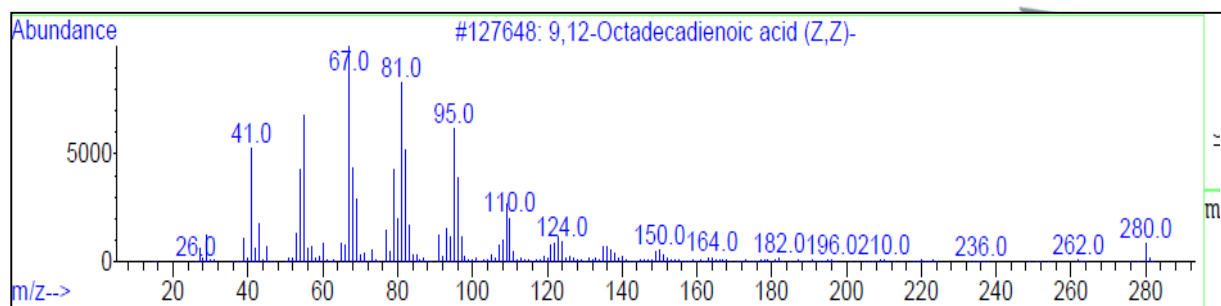


FIGURE 24: GC-MS of total compounds in dates fruit sample extracted with Methanol; Chloroform (30 %- 70 %)



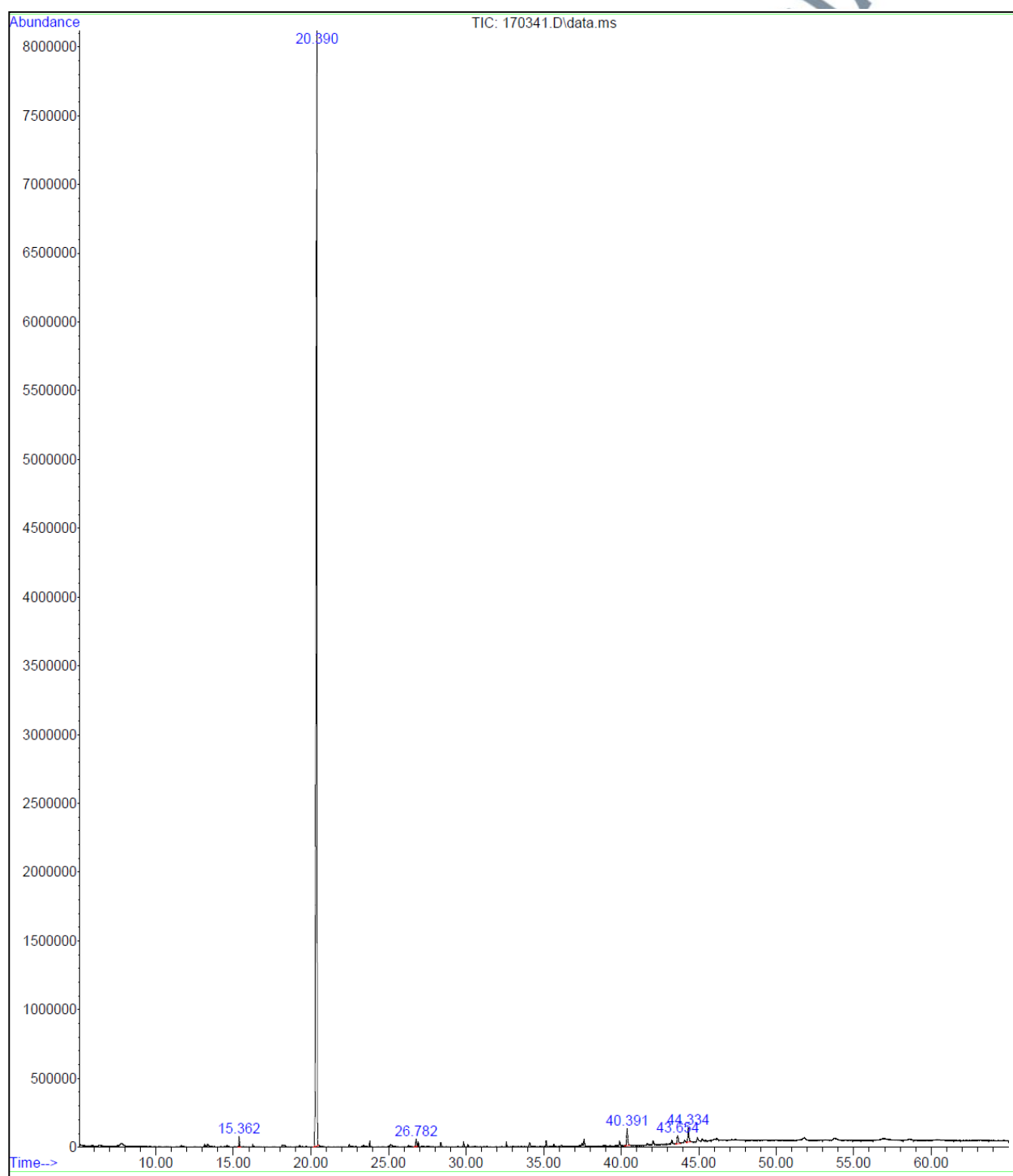






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FIGURE 25: GC-MS of total compounds in date fruits sample extracted with Chloroform; Hexane (30 %- 70 %)



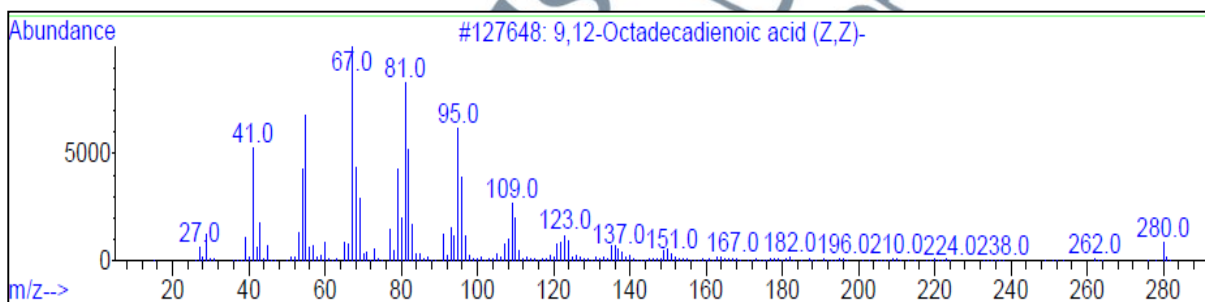
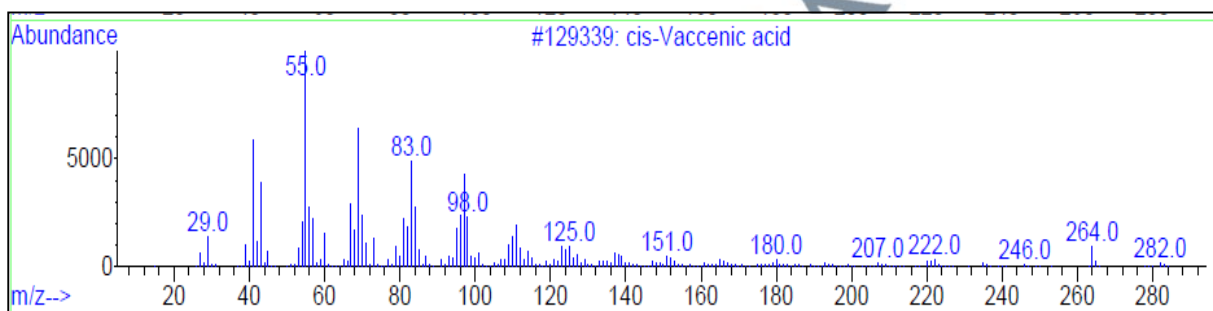
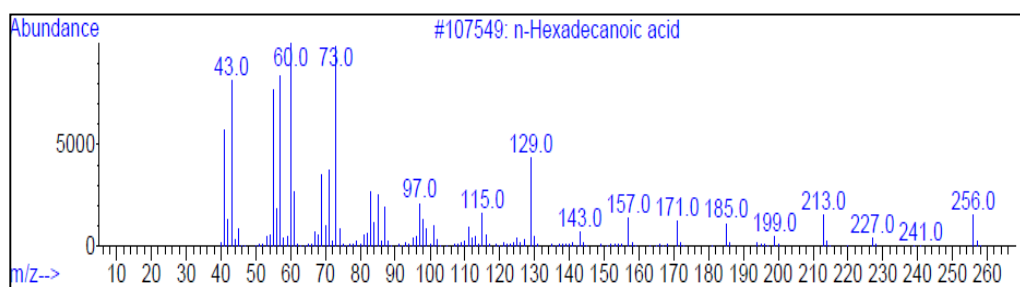
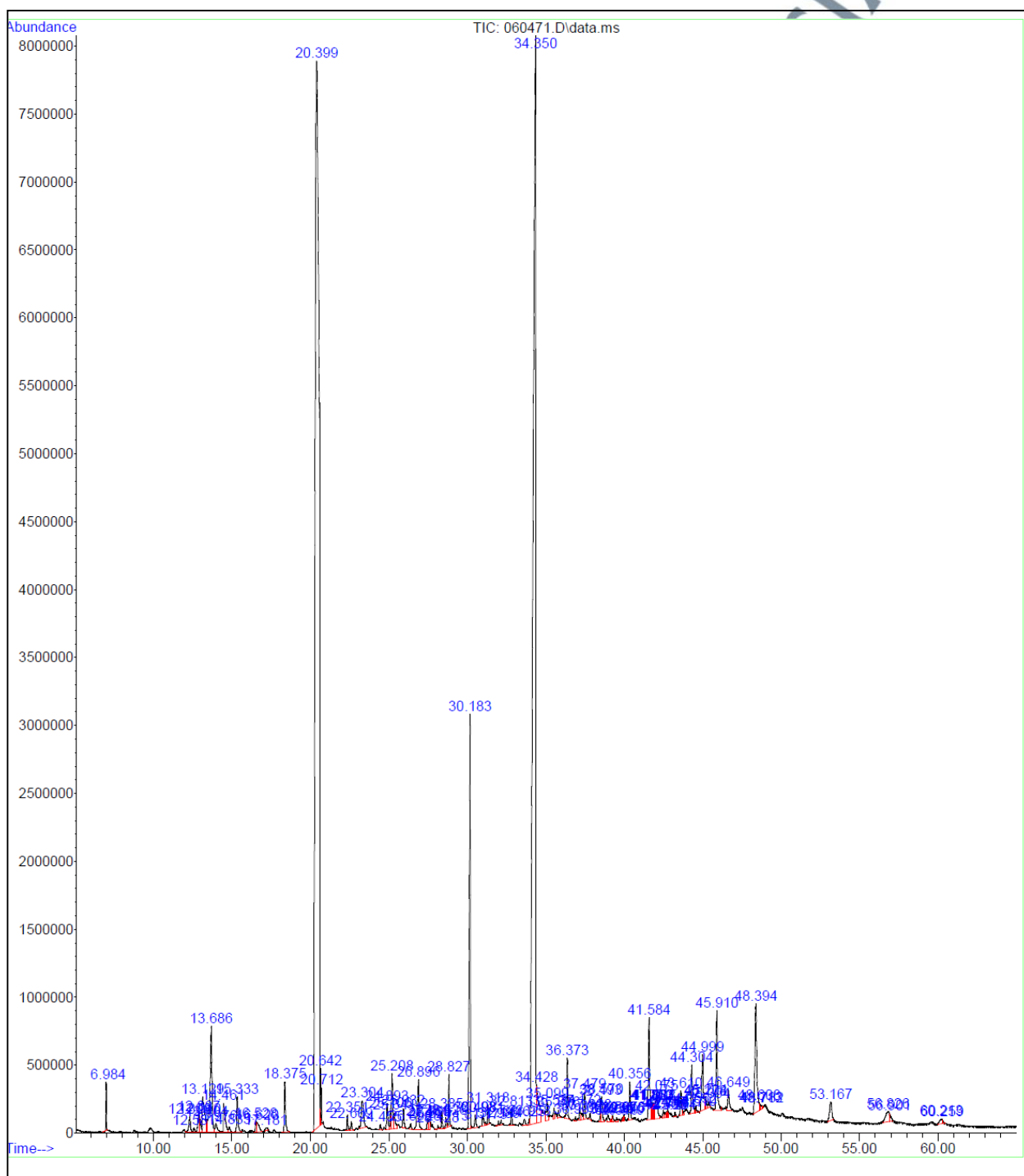
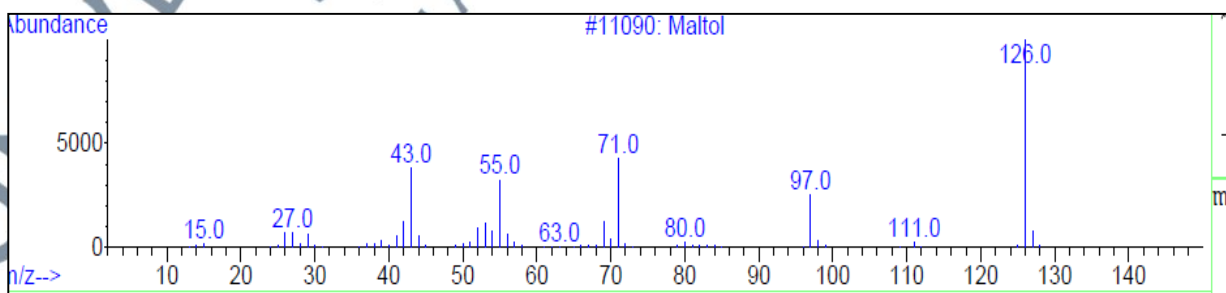
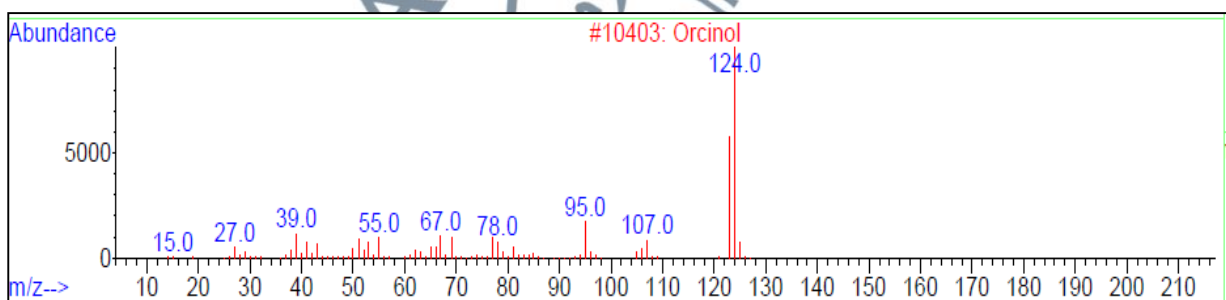
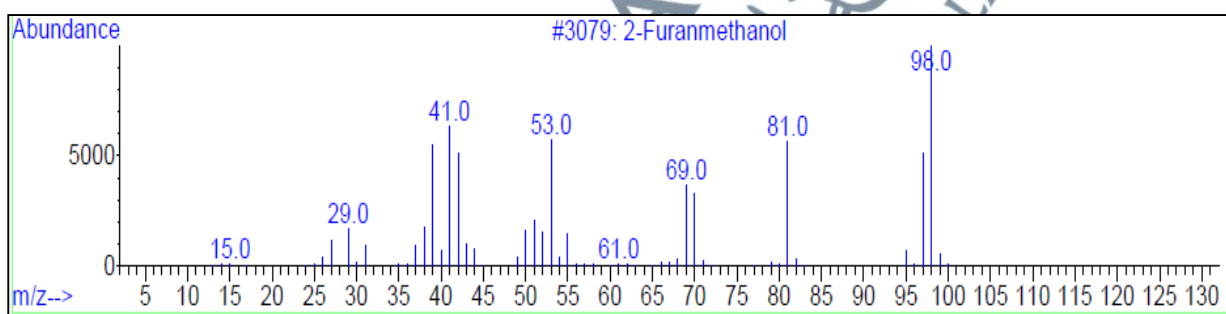
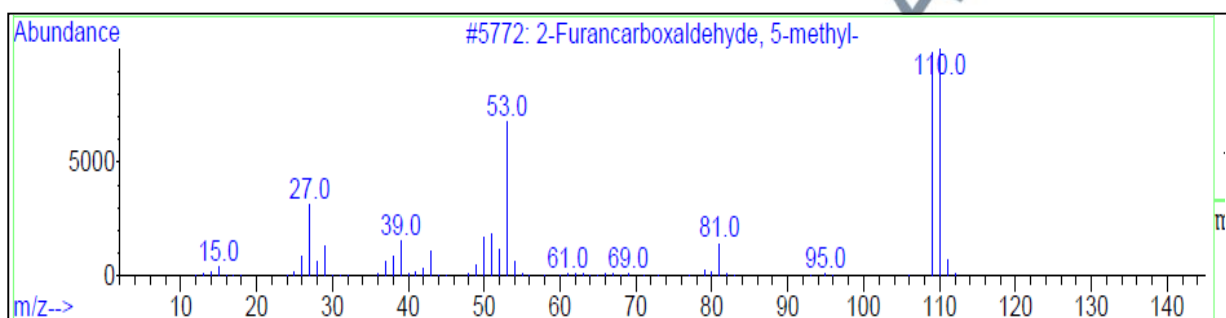
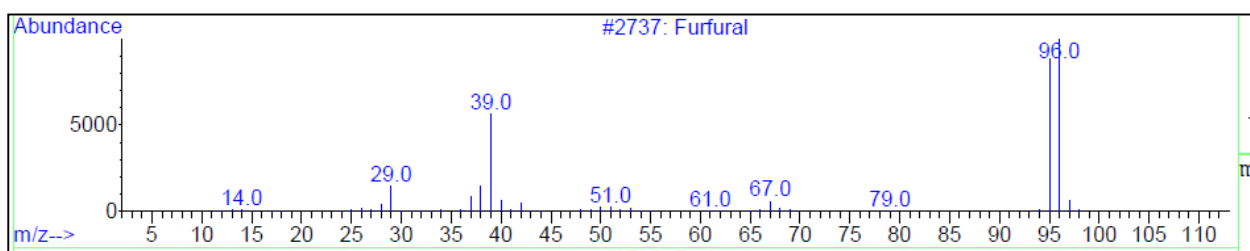
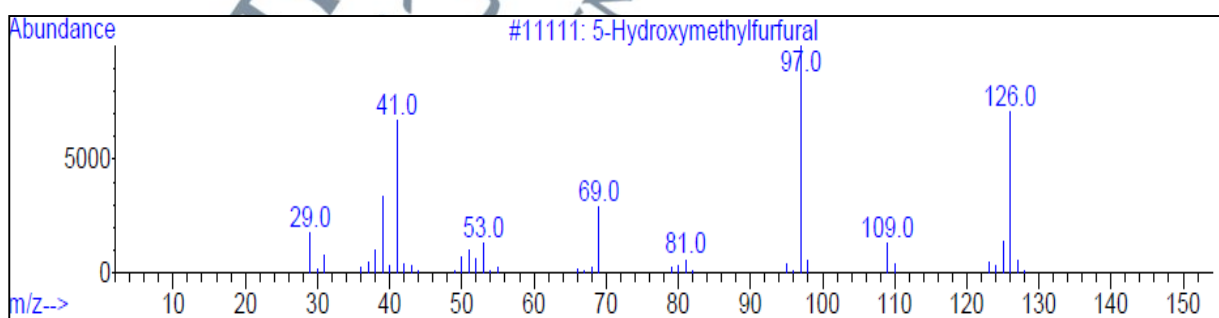
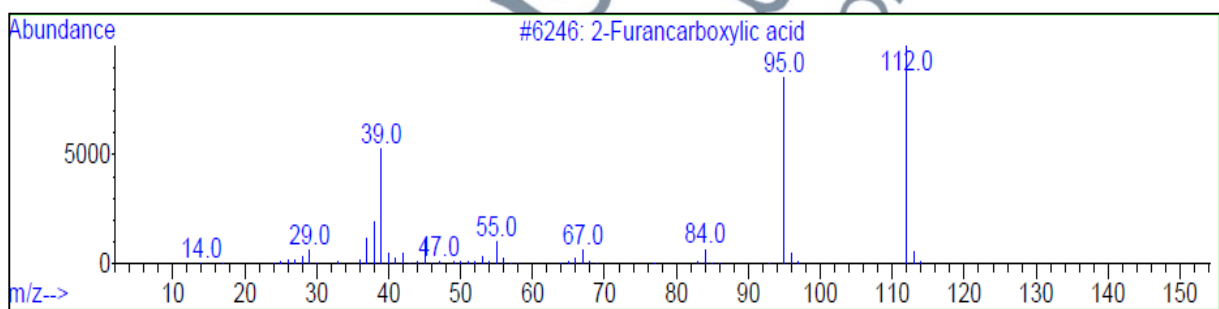
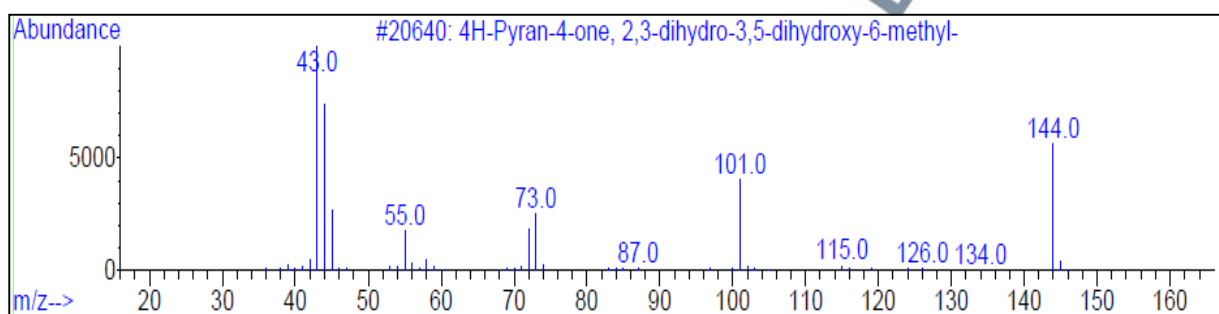
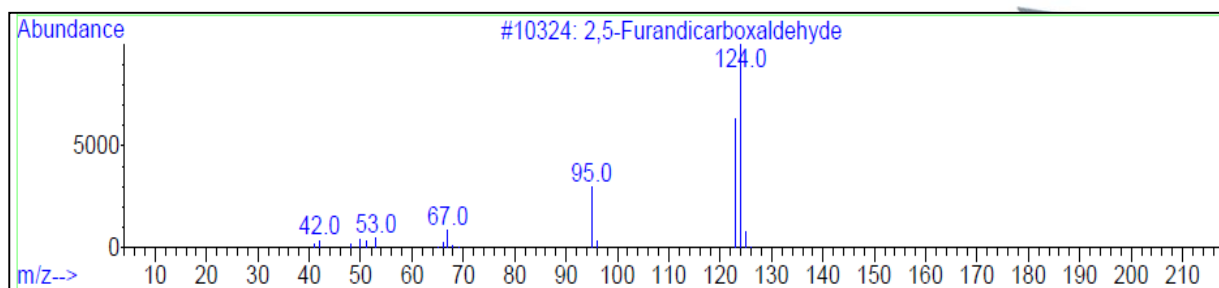
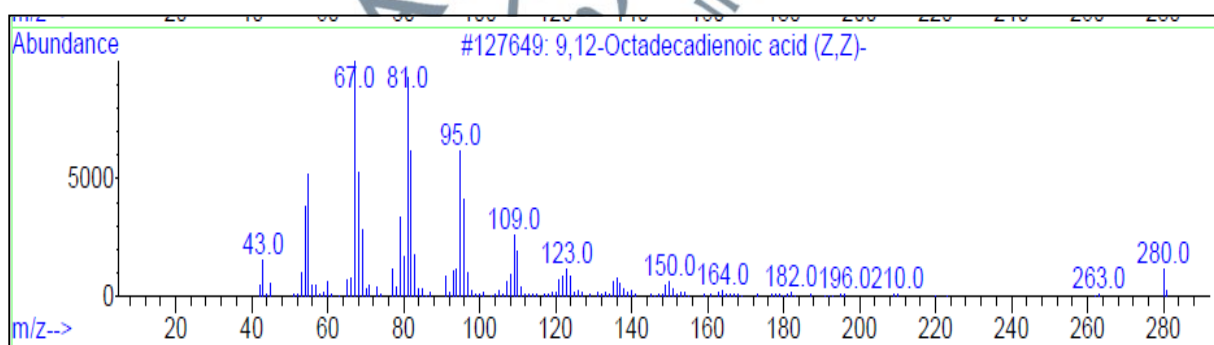
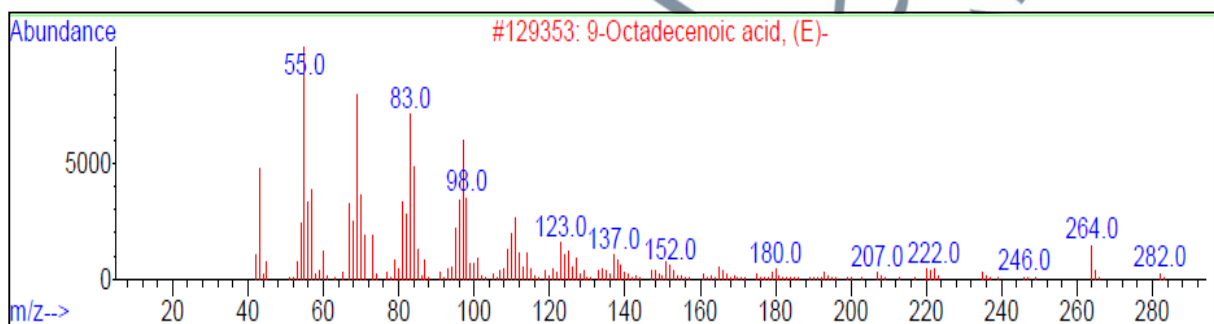
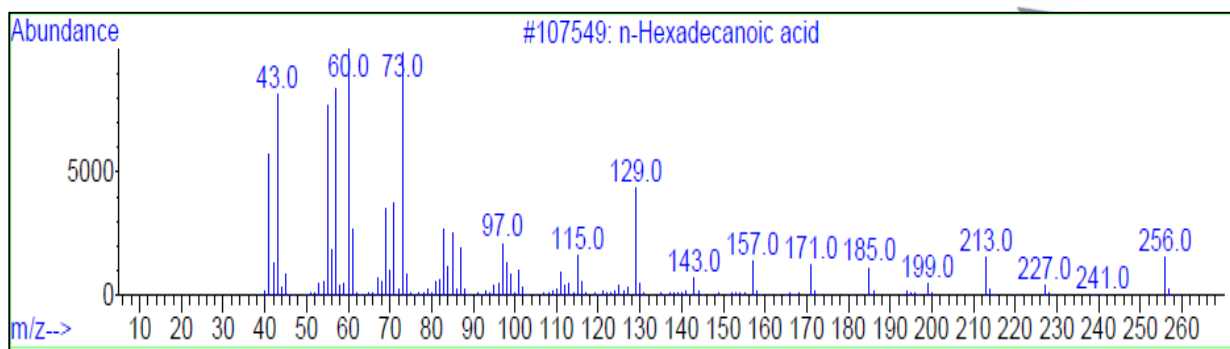


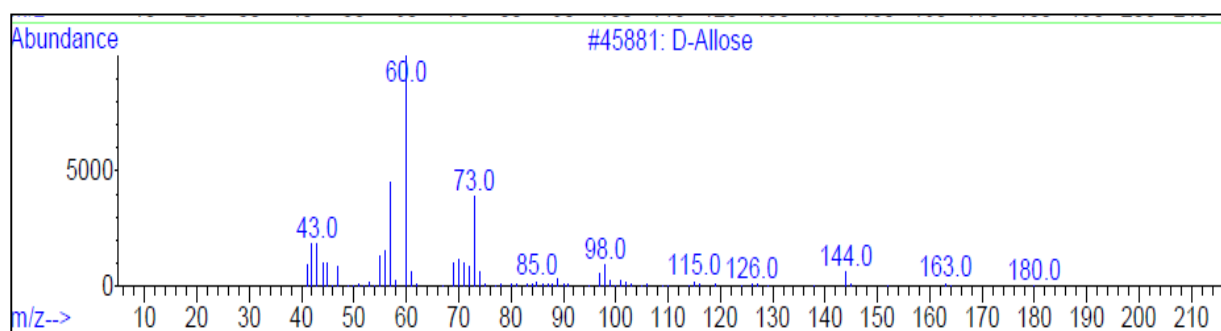
FIGURE 26: GC-MS of total compounds in dates fruit sample extracted with Methanol; Hexane (30 %- 70 %)





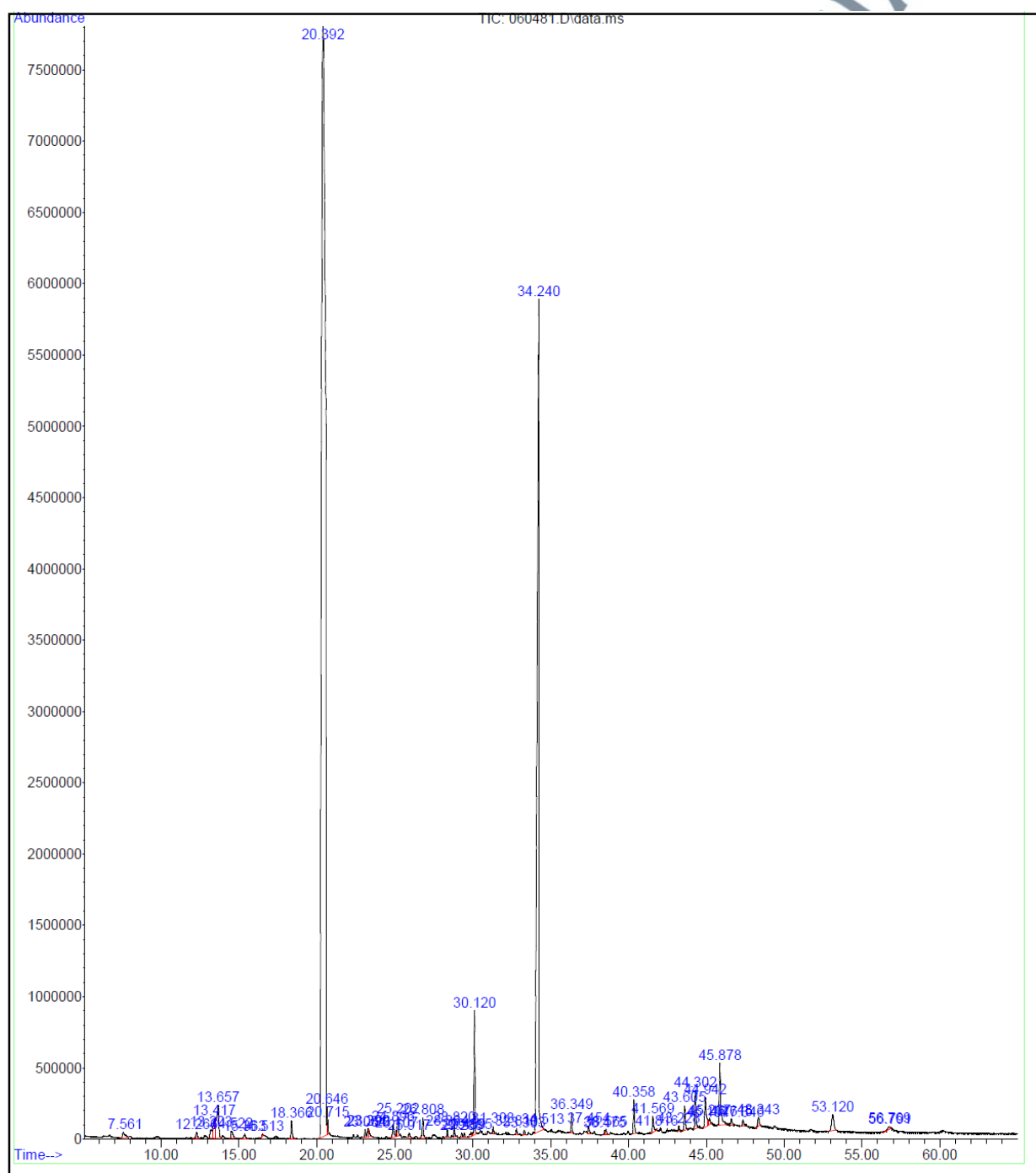


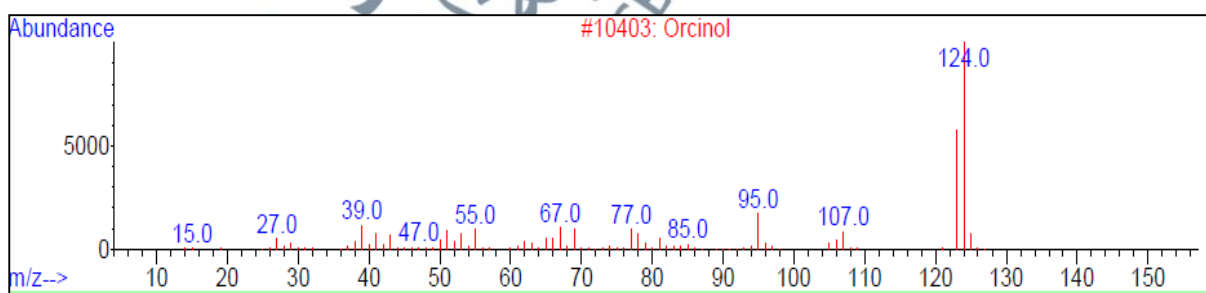
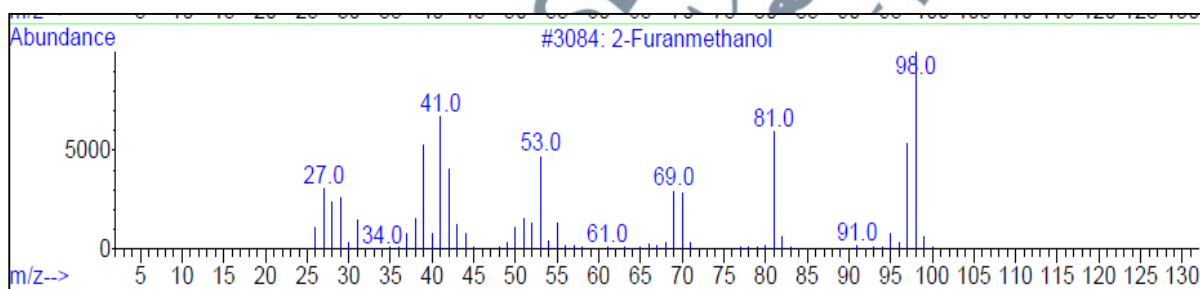
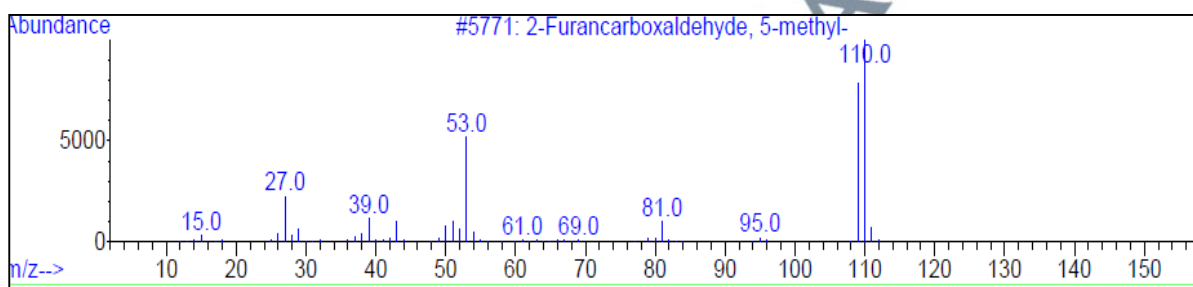
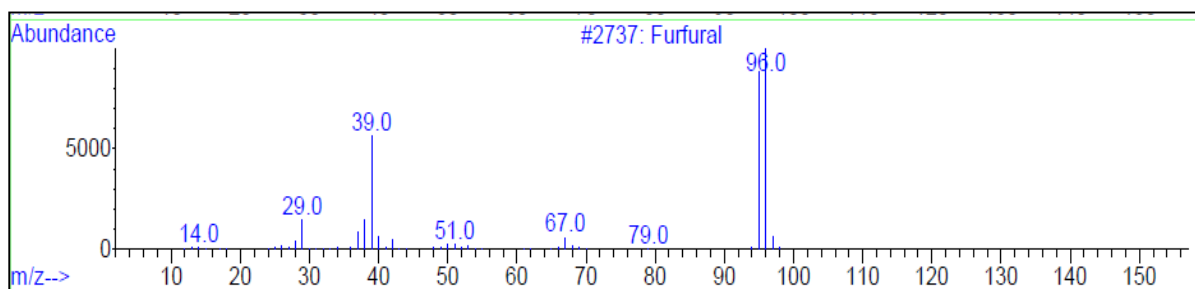


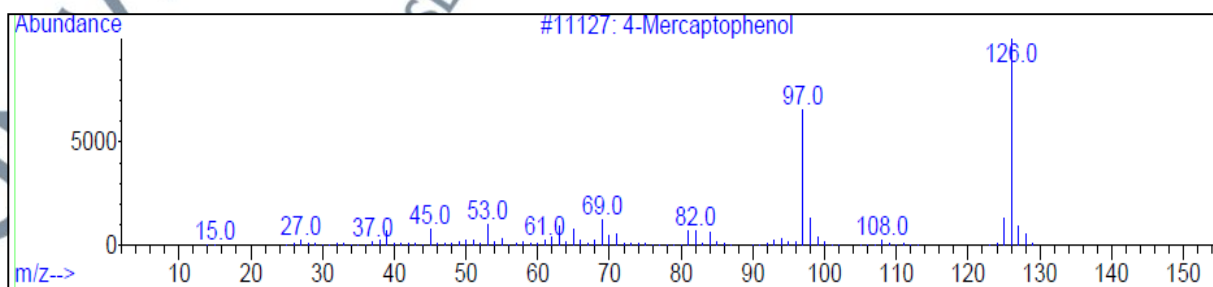
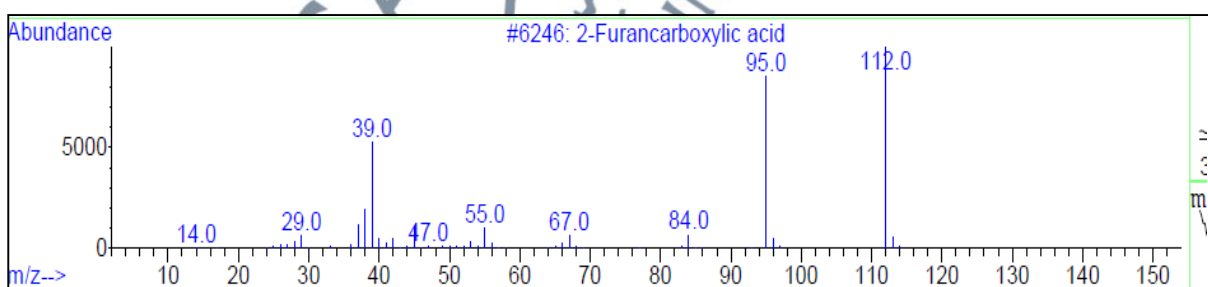
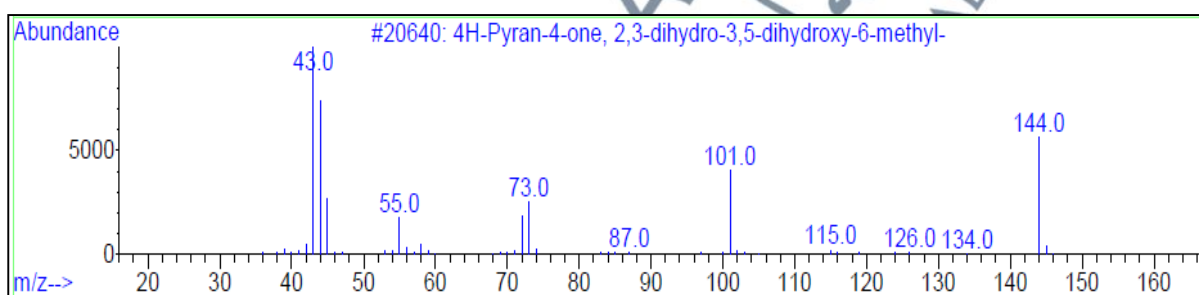
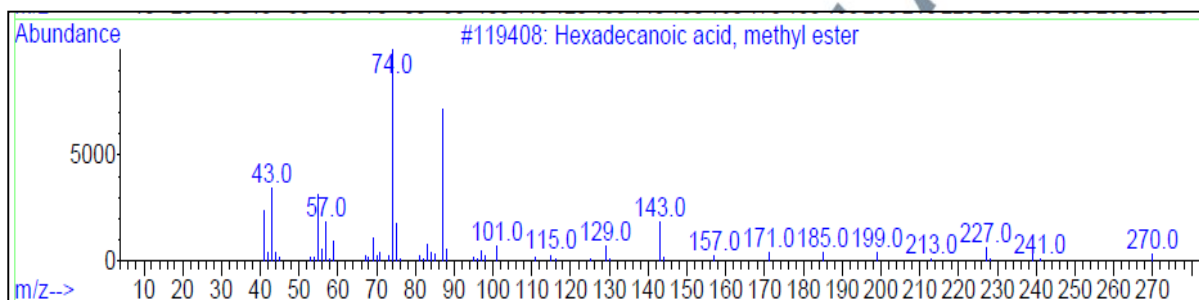
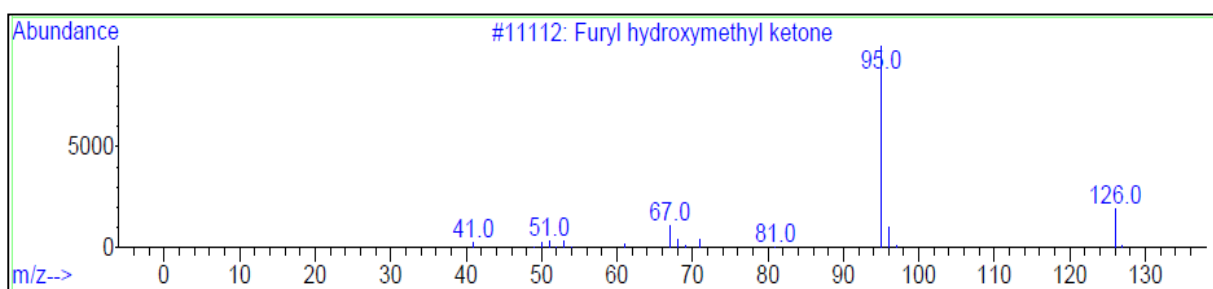


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FIGURE 27: GC-MS of total compounds in dates fruit sample extracted with Methanol - Chloroform (50 %- 50 %)







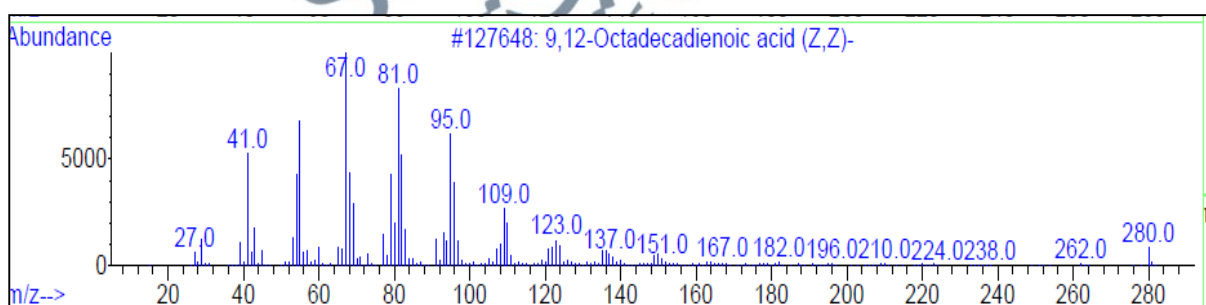
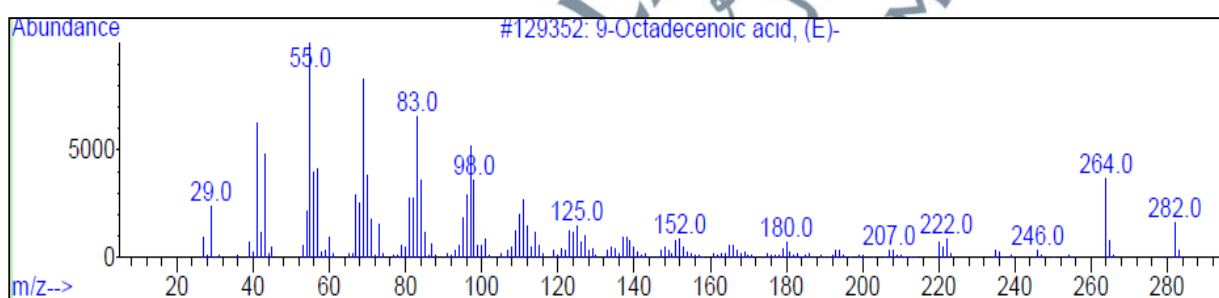
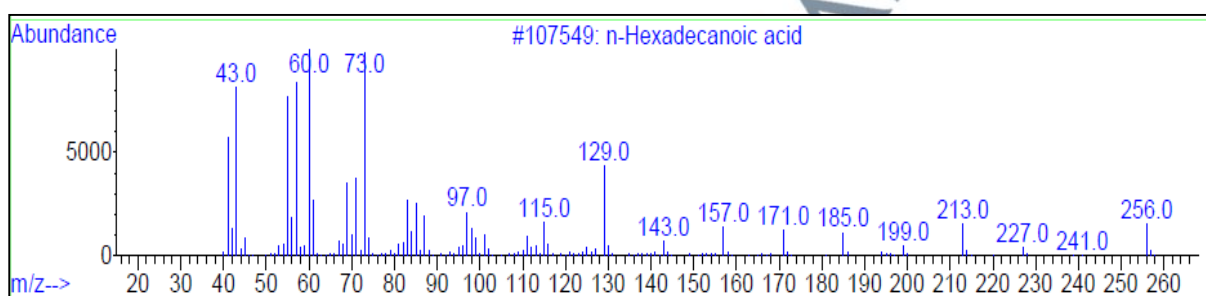
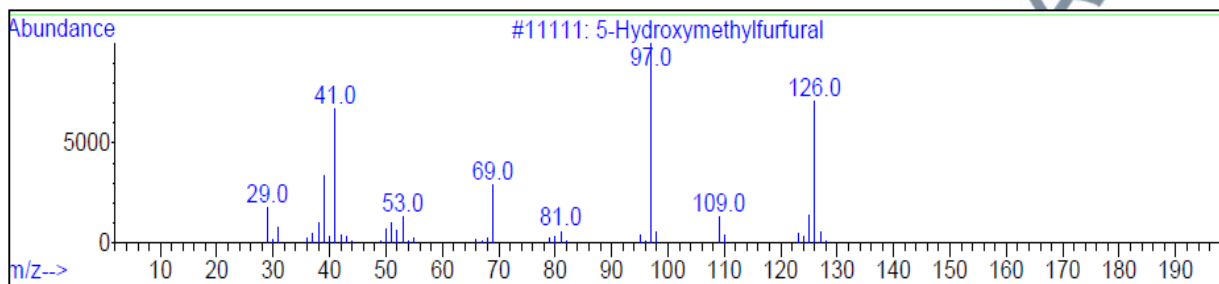
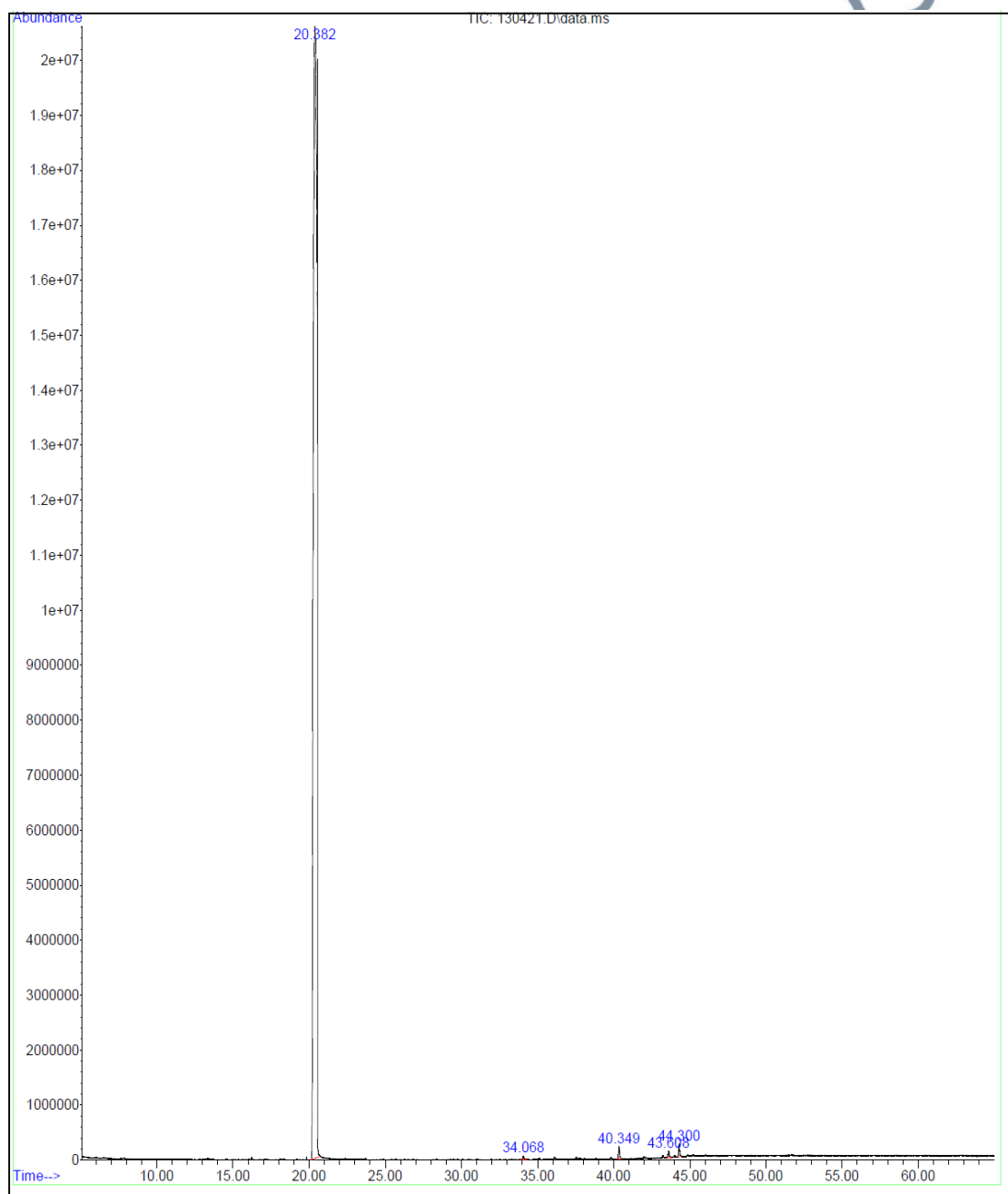


FIGURE 28: GC-MS of total compounds in date fruits sample extracted with Chloroform; Hexane (50 %- 50 %)



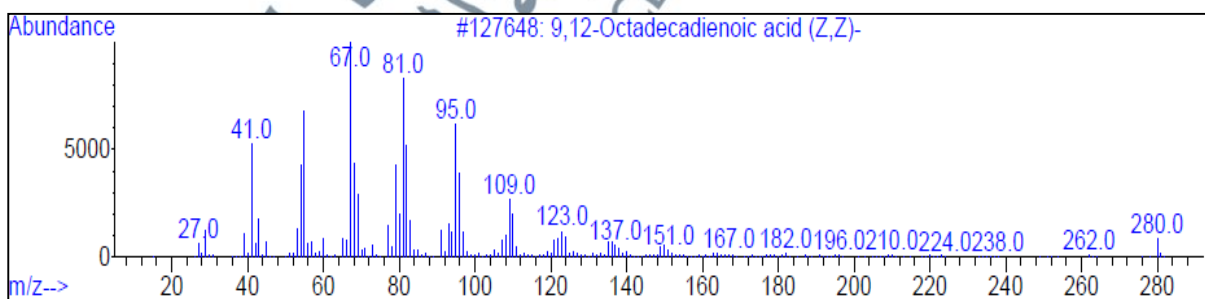
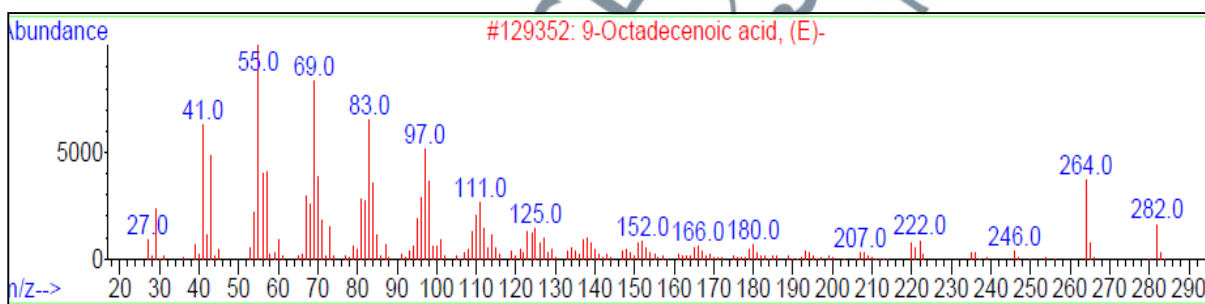
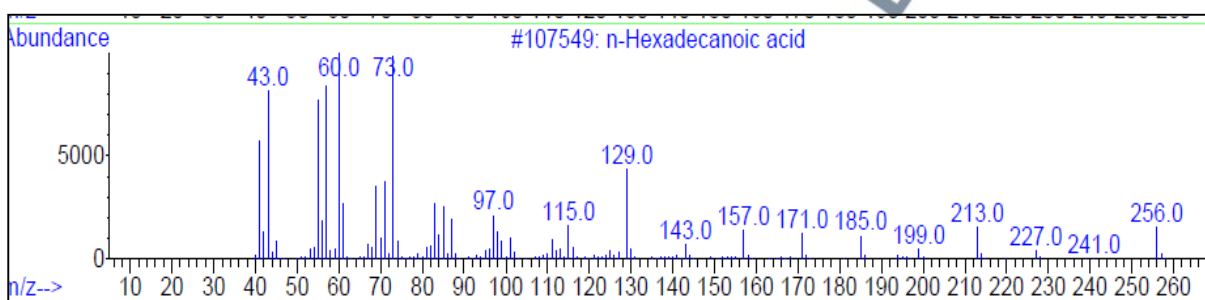
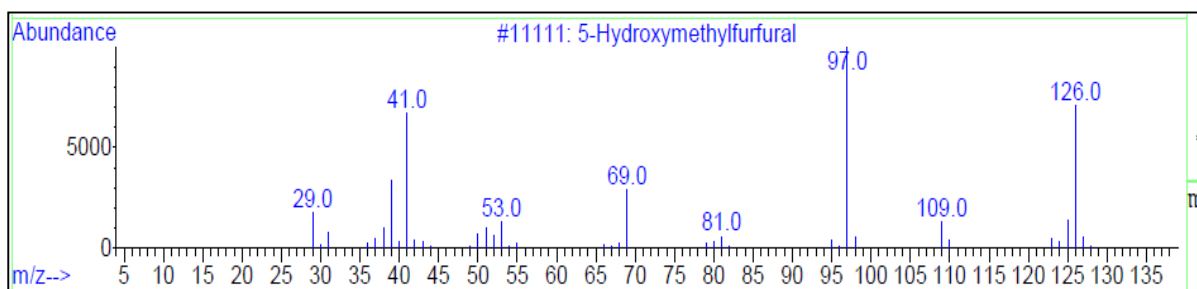
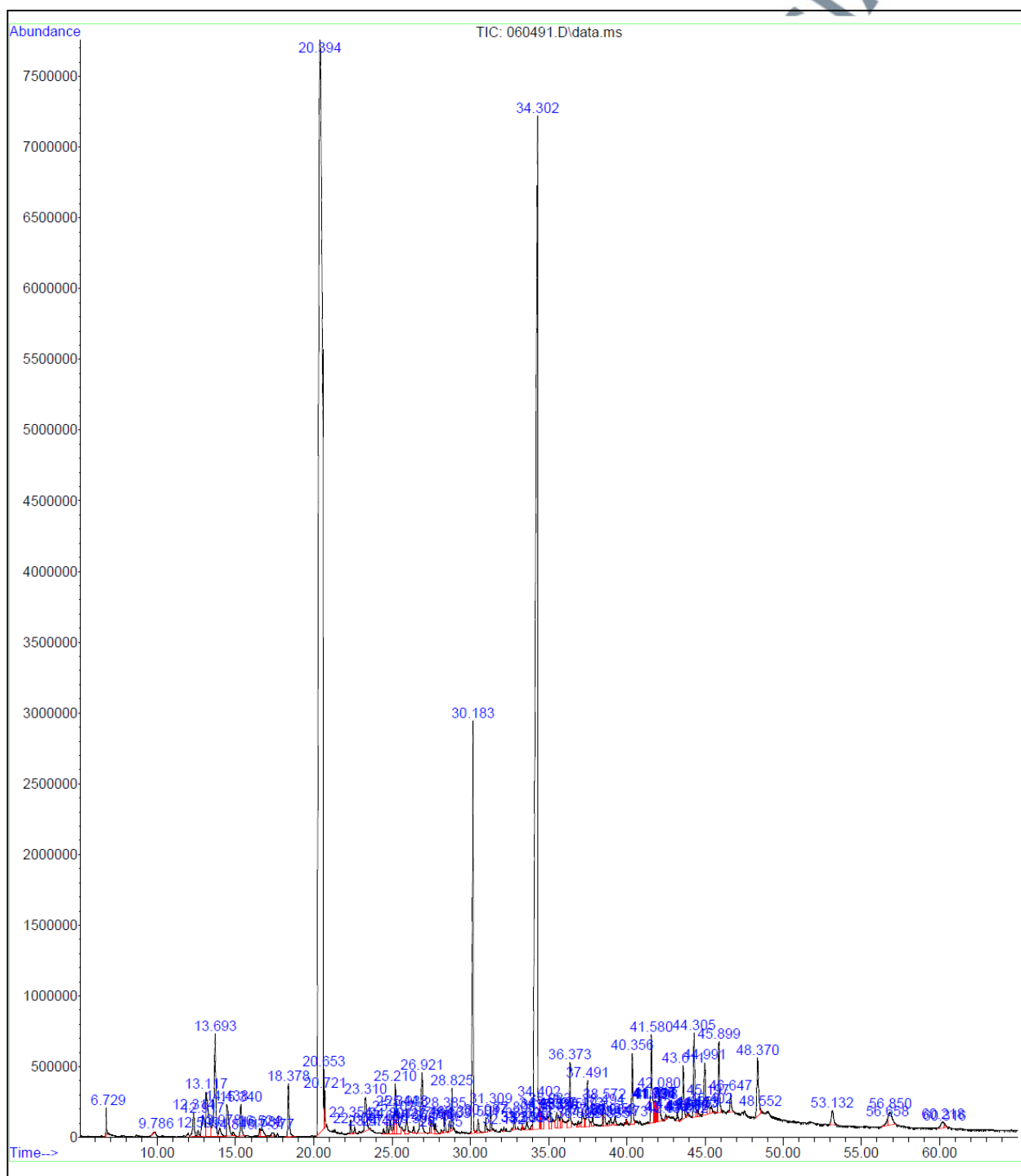
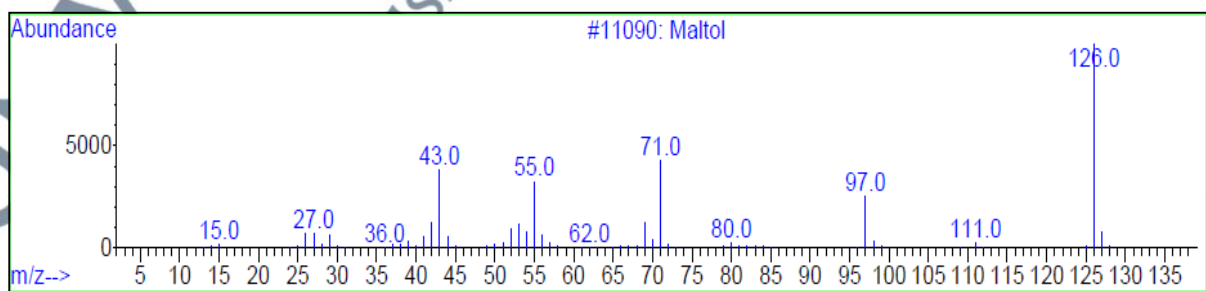
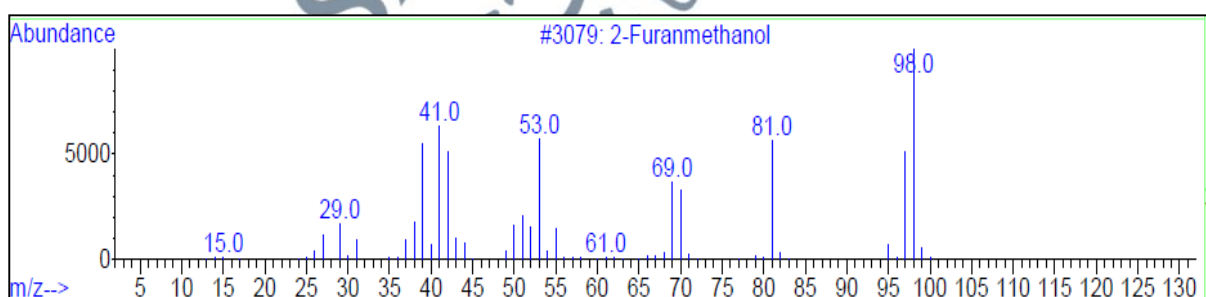
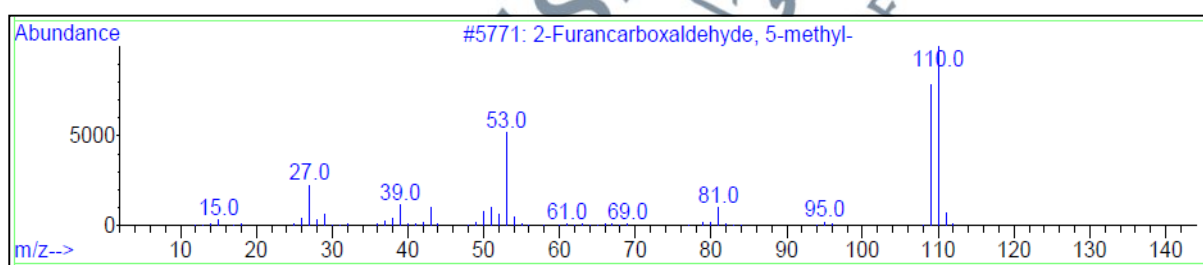
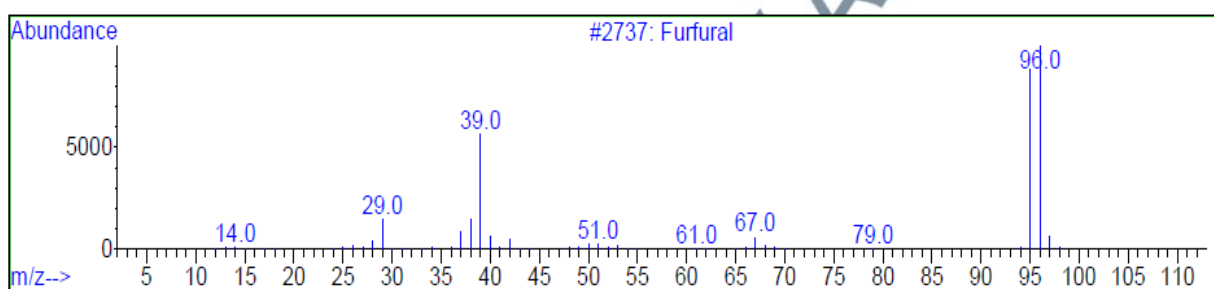
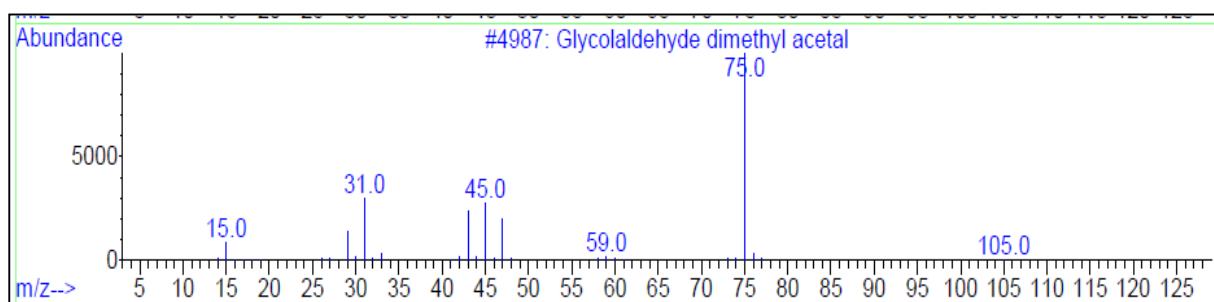
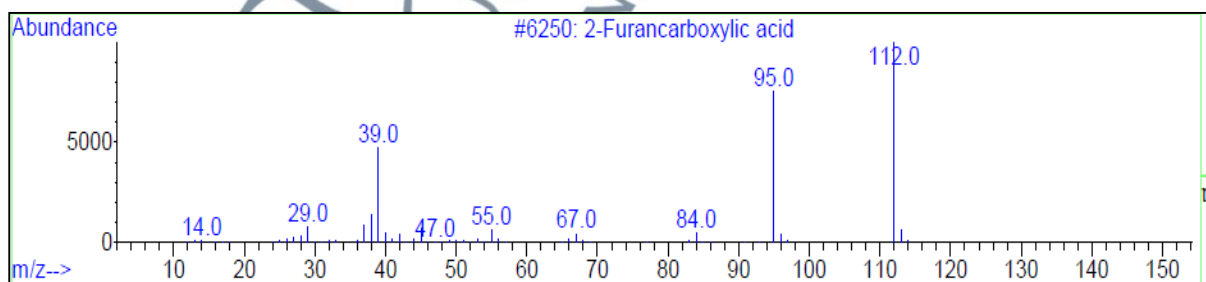
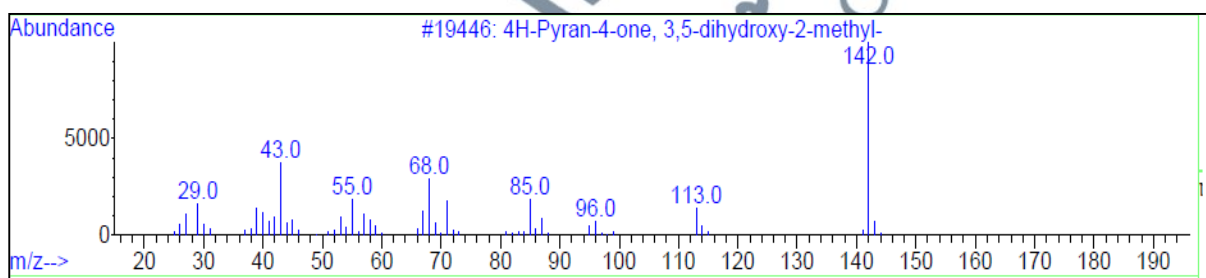
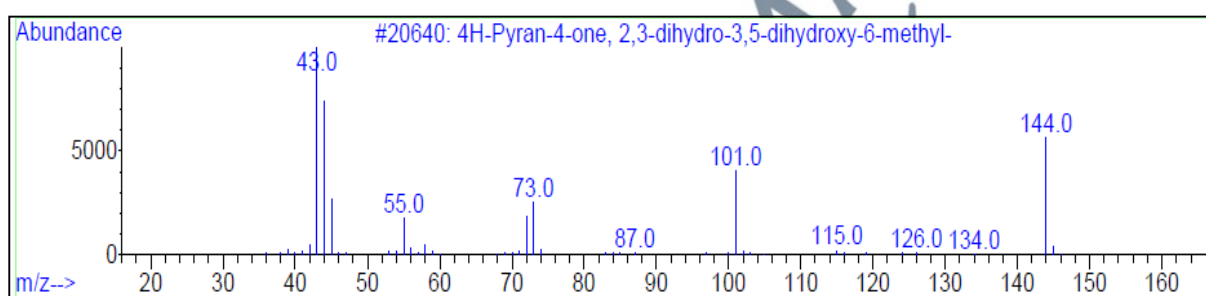
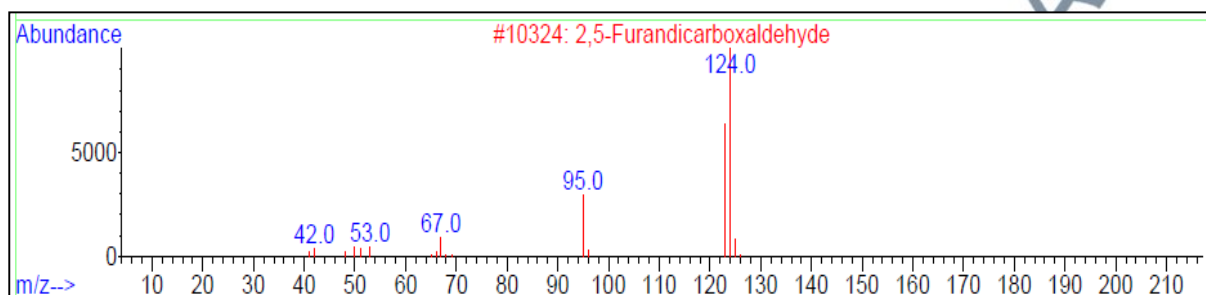
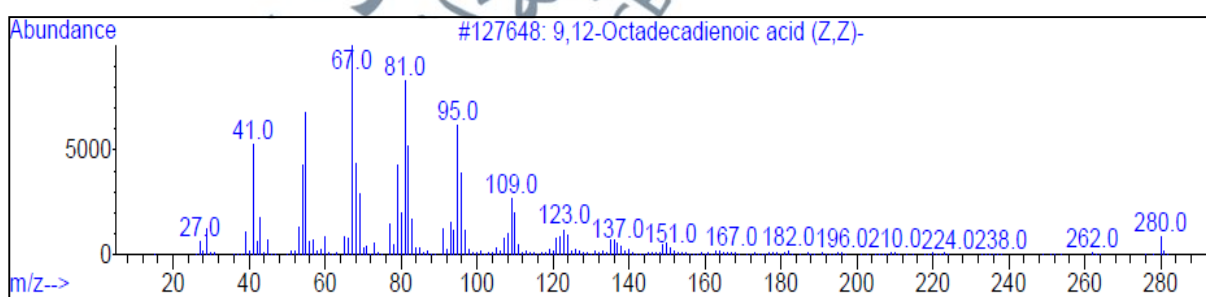
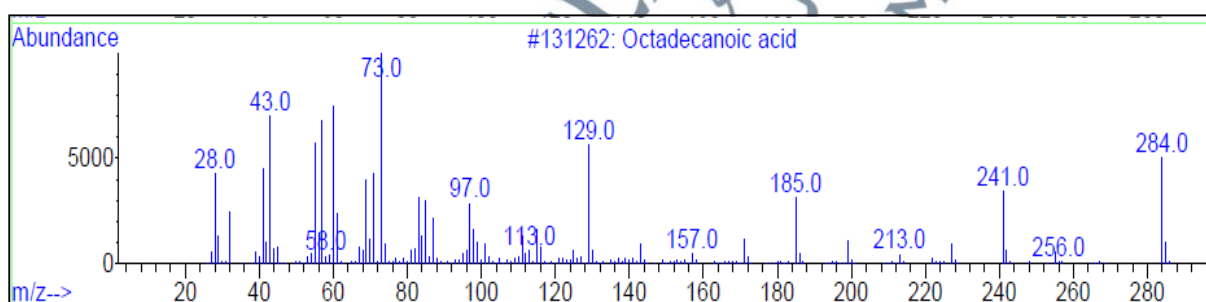
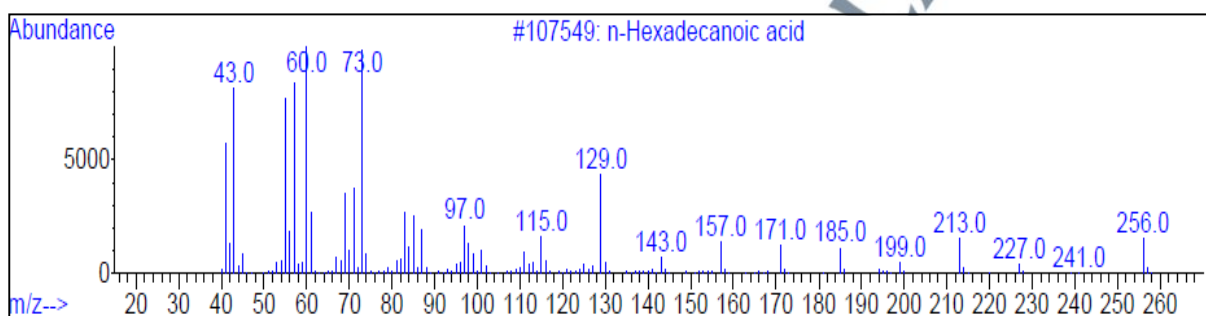
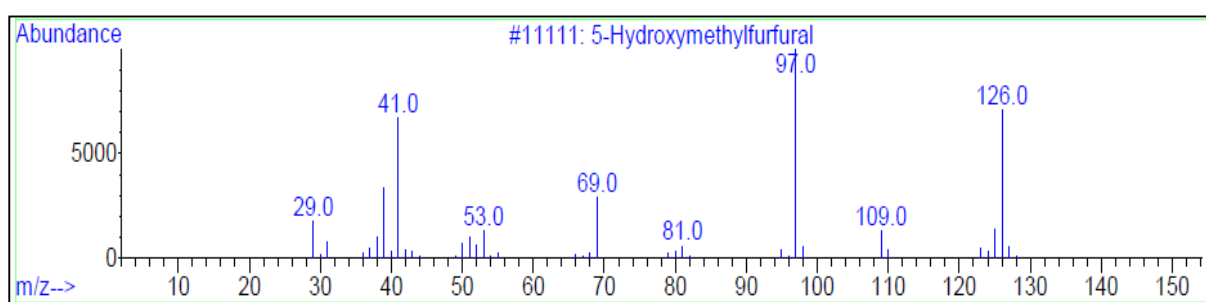


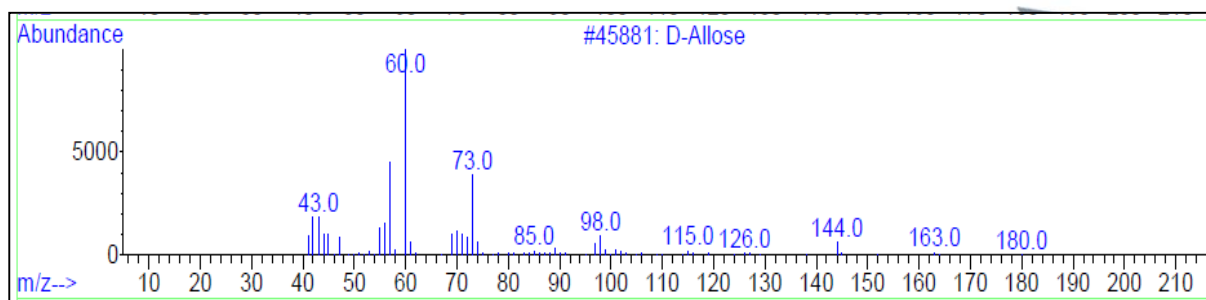
FIGURE 29: GC-MS of total compounds in date fruits sample extracted with Methanol - Hexane (50 %- 50 %)





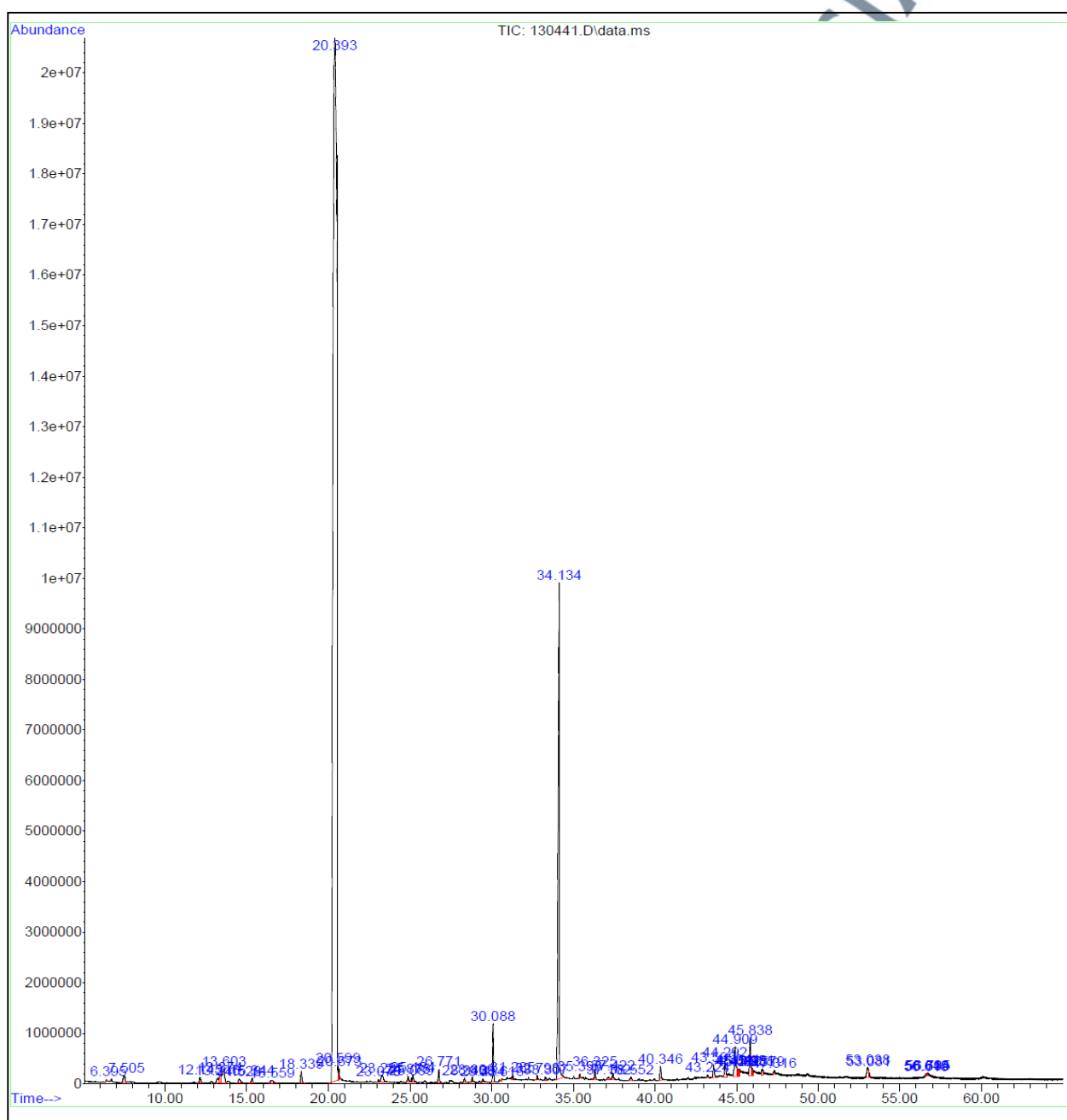


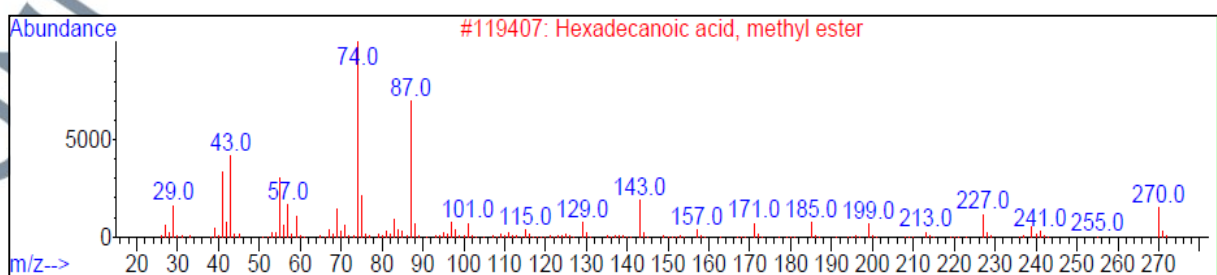
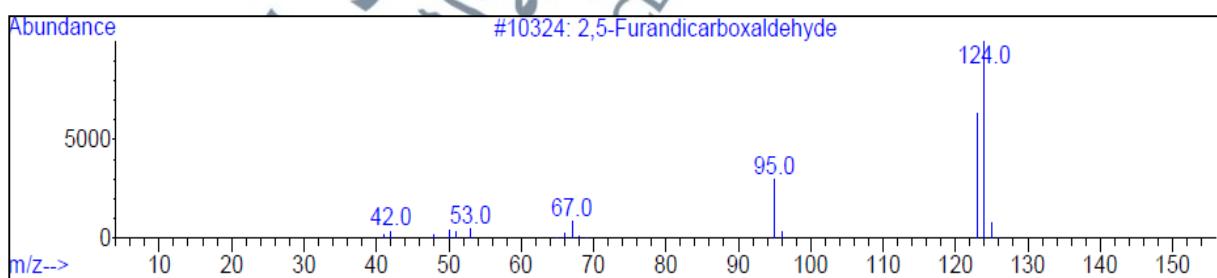
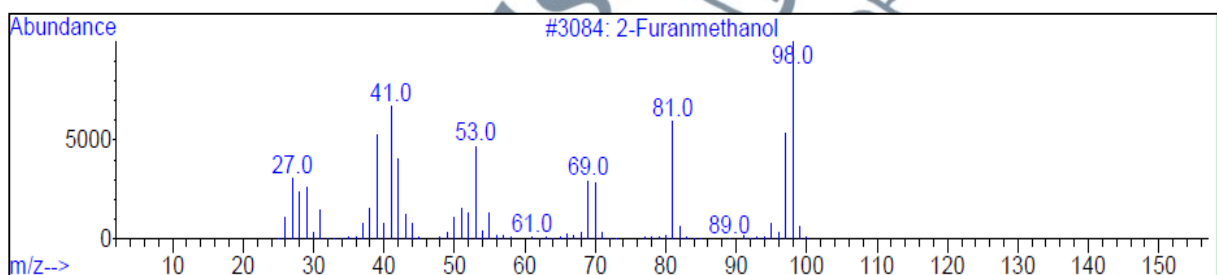
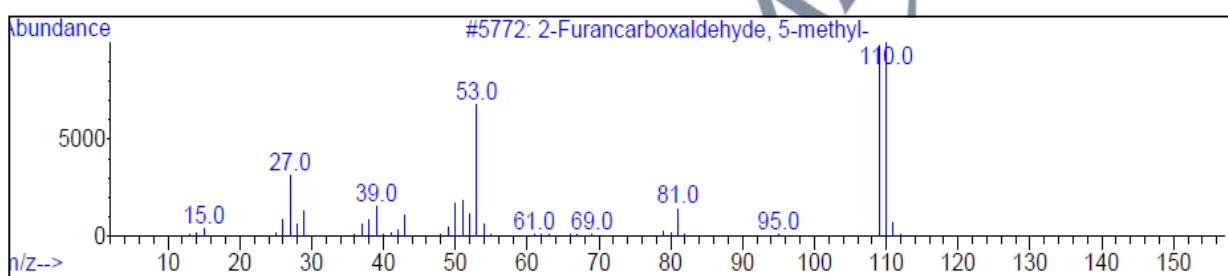
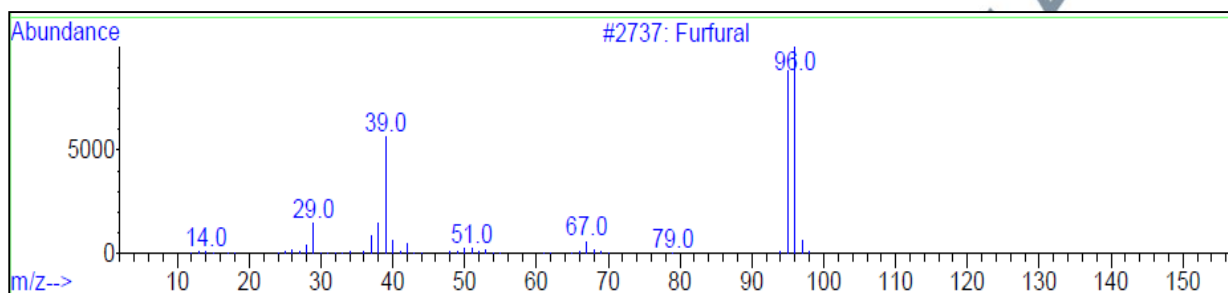


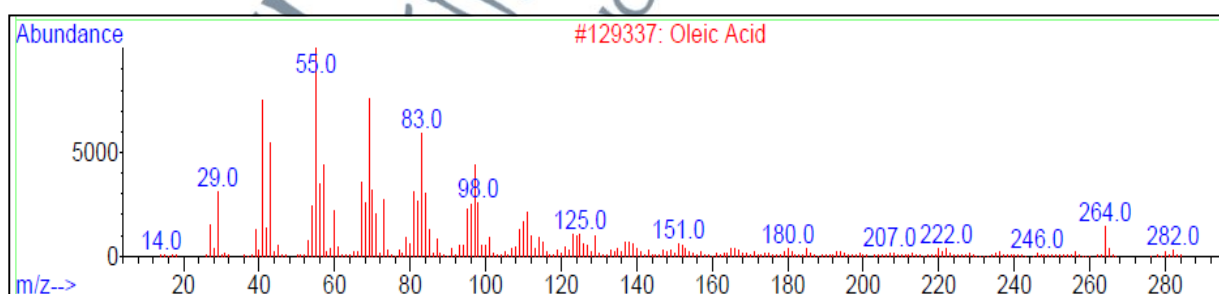
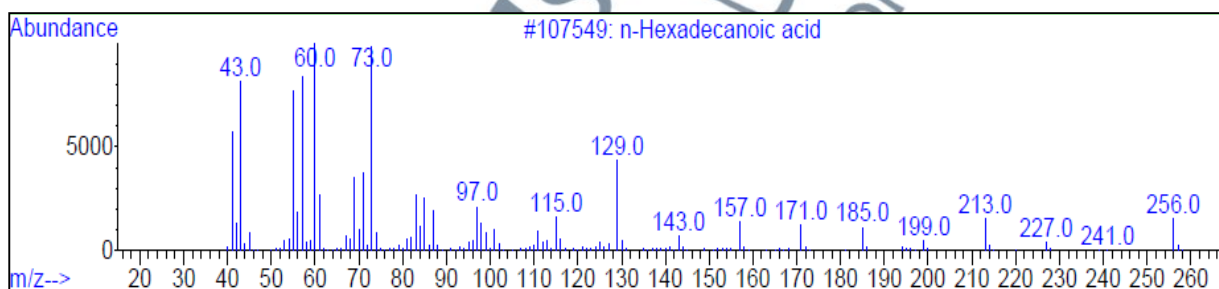
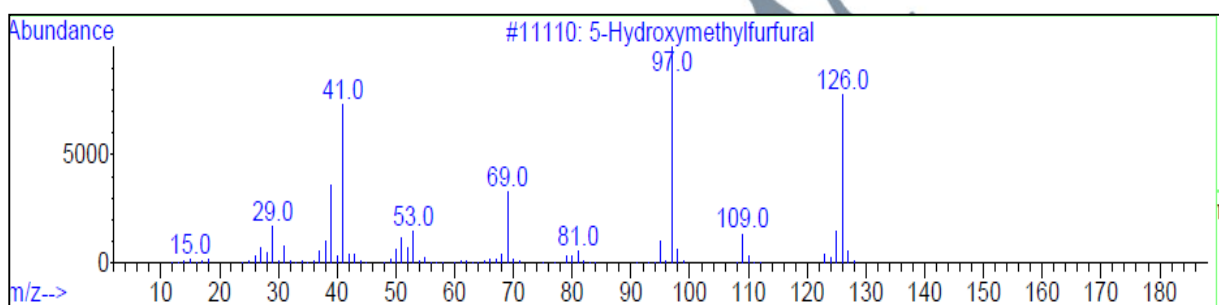
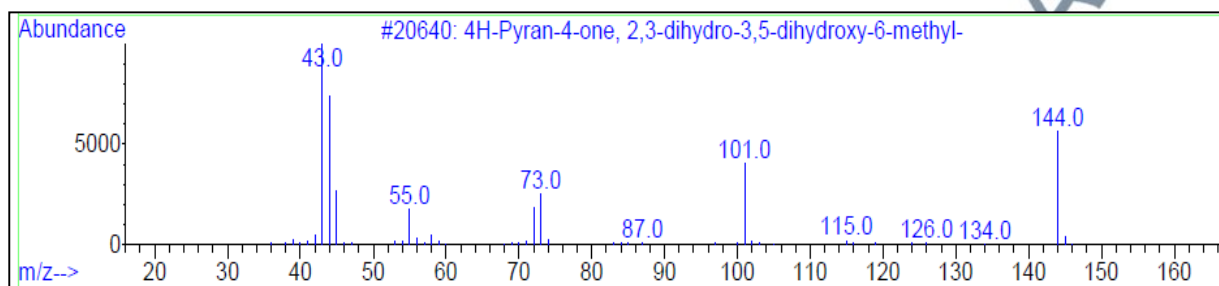


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FIGURE 30: GC-MS of total compounds in Tamar date fruit sample extracted with Methanol - Chloroform (50 %- 50 %)







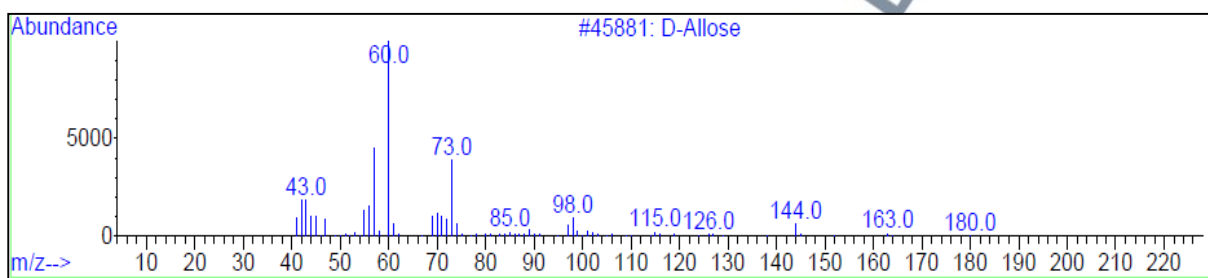
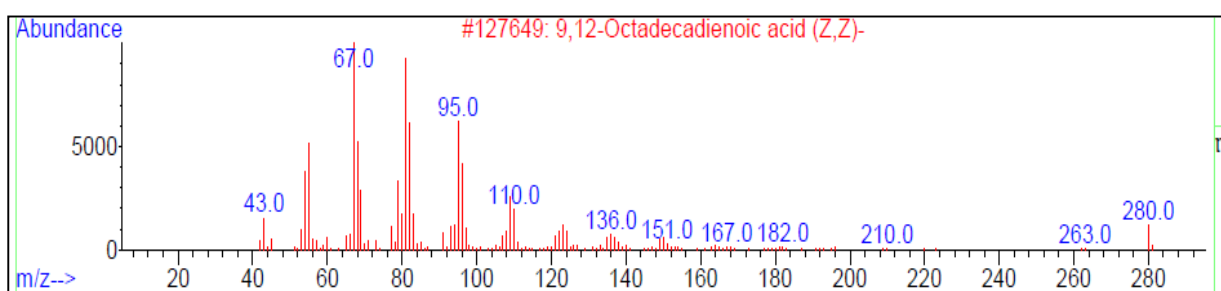
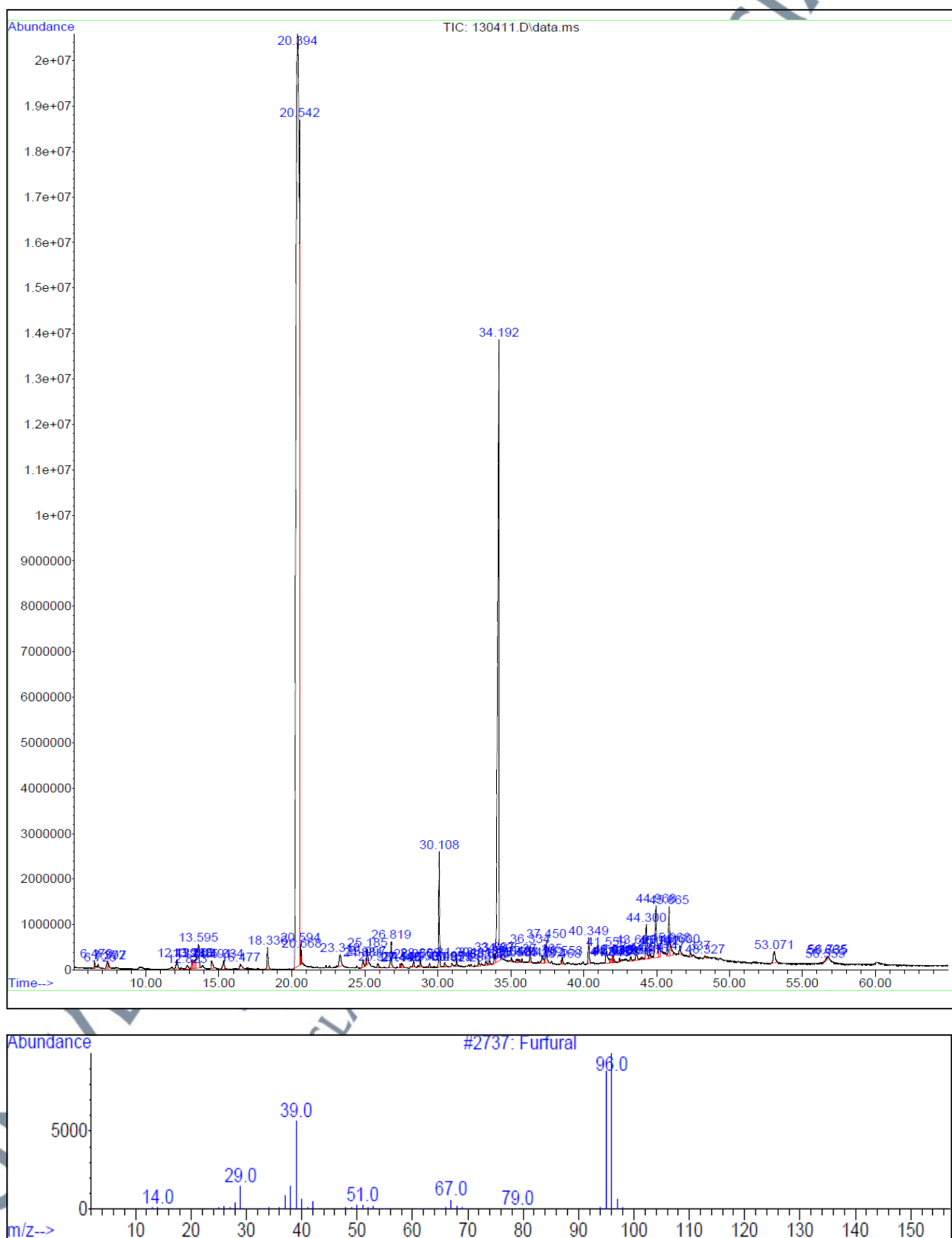
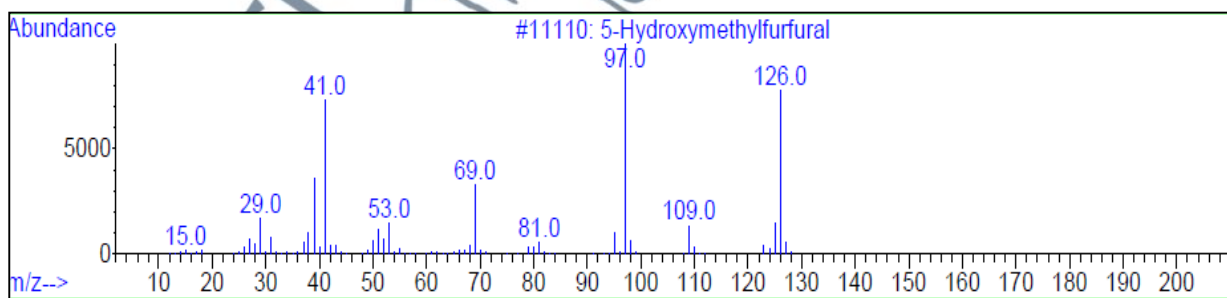
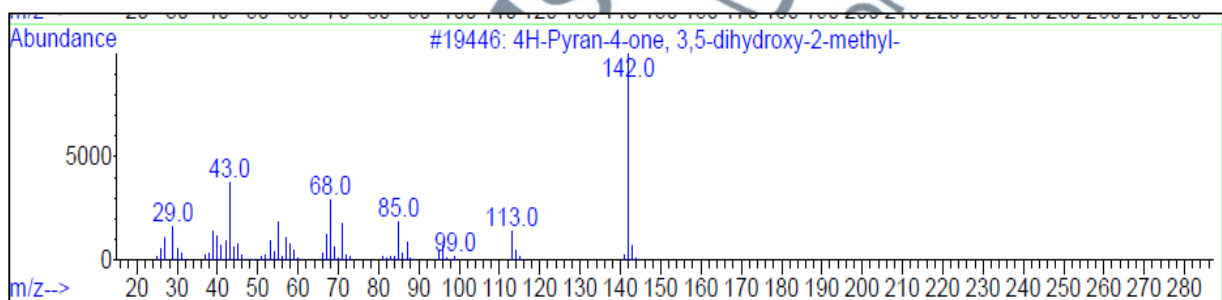
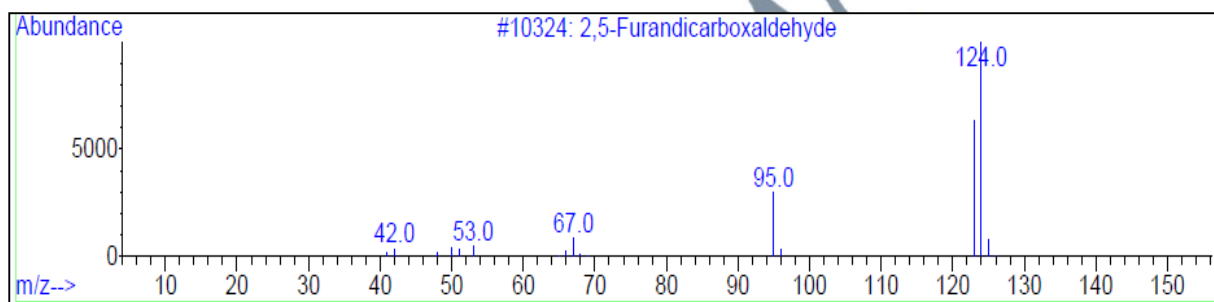
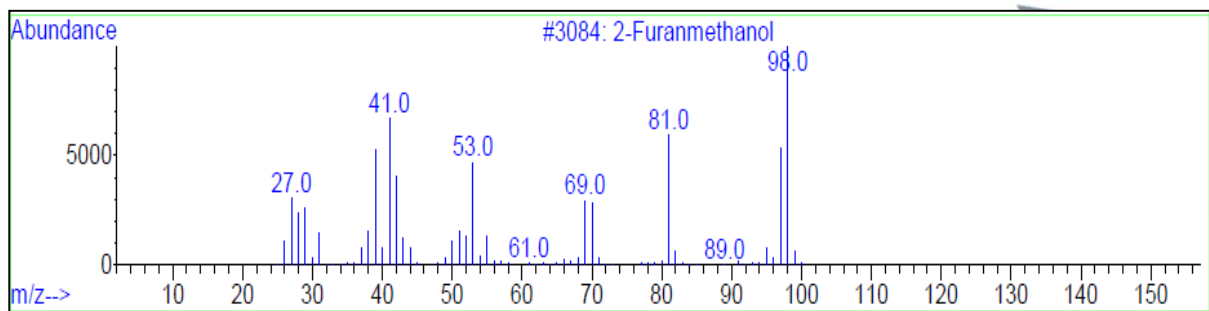


FIGURE 31: GC-MS of total compounds in Rutab date fruit sample extracted with Methanol; Chloroform (50 %- 50 %)





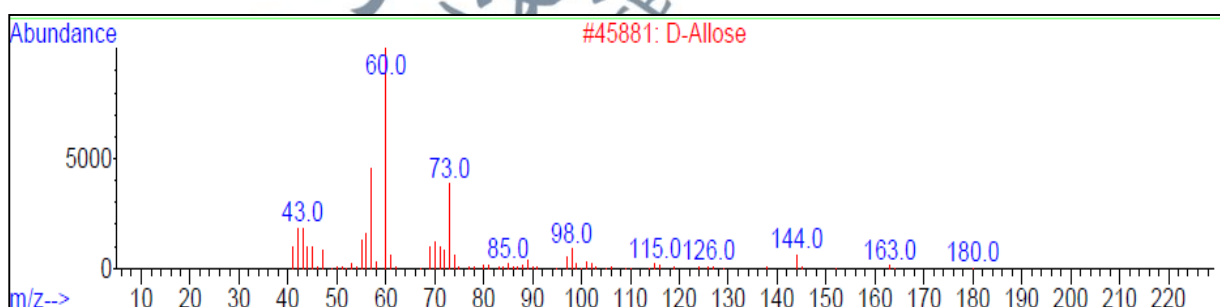
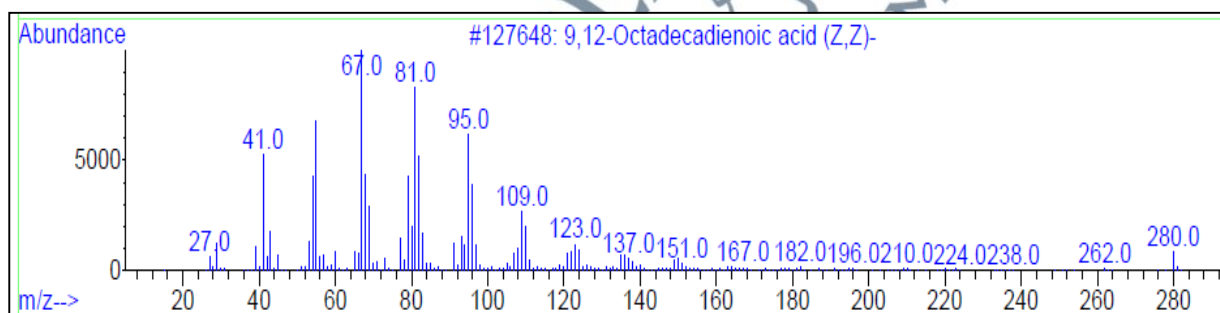
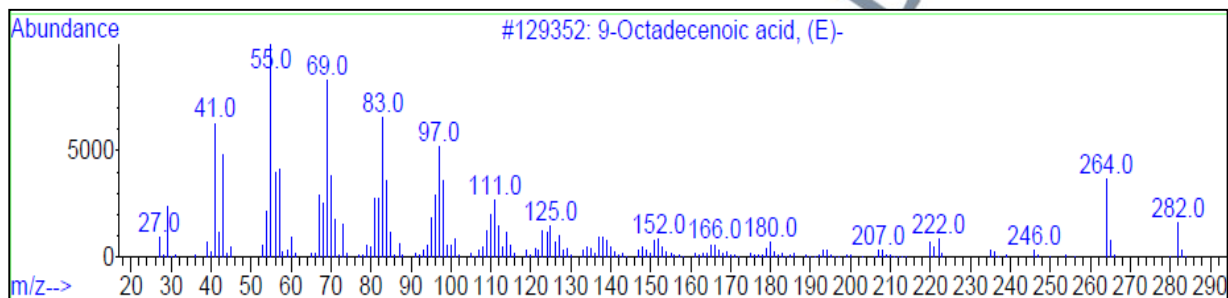
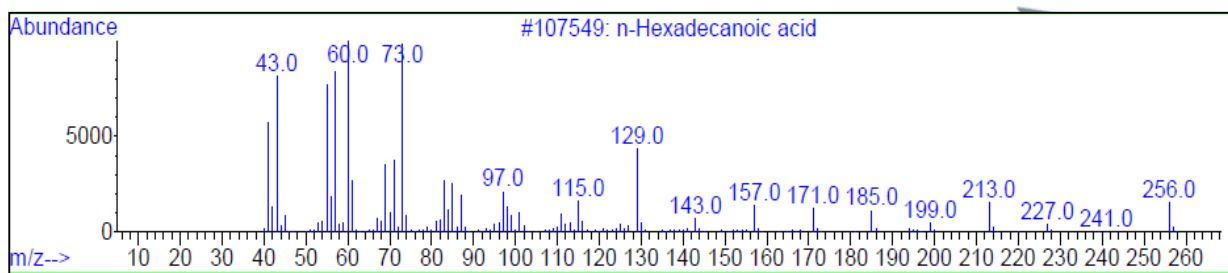
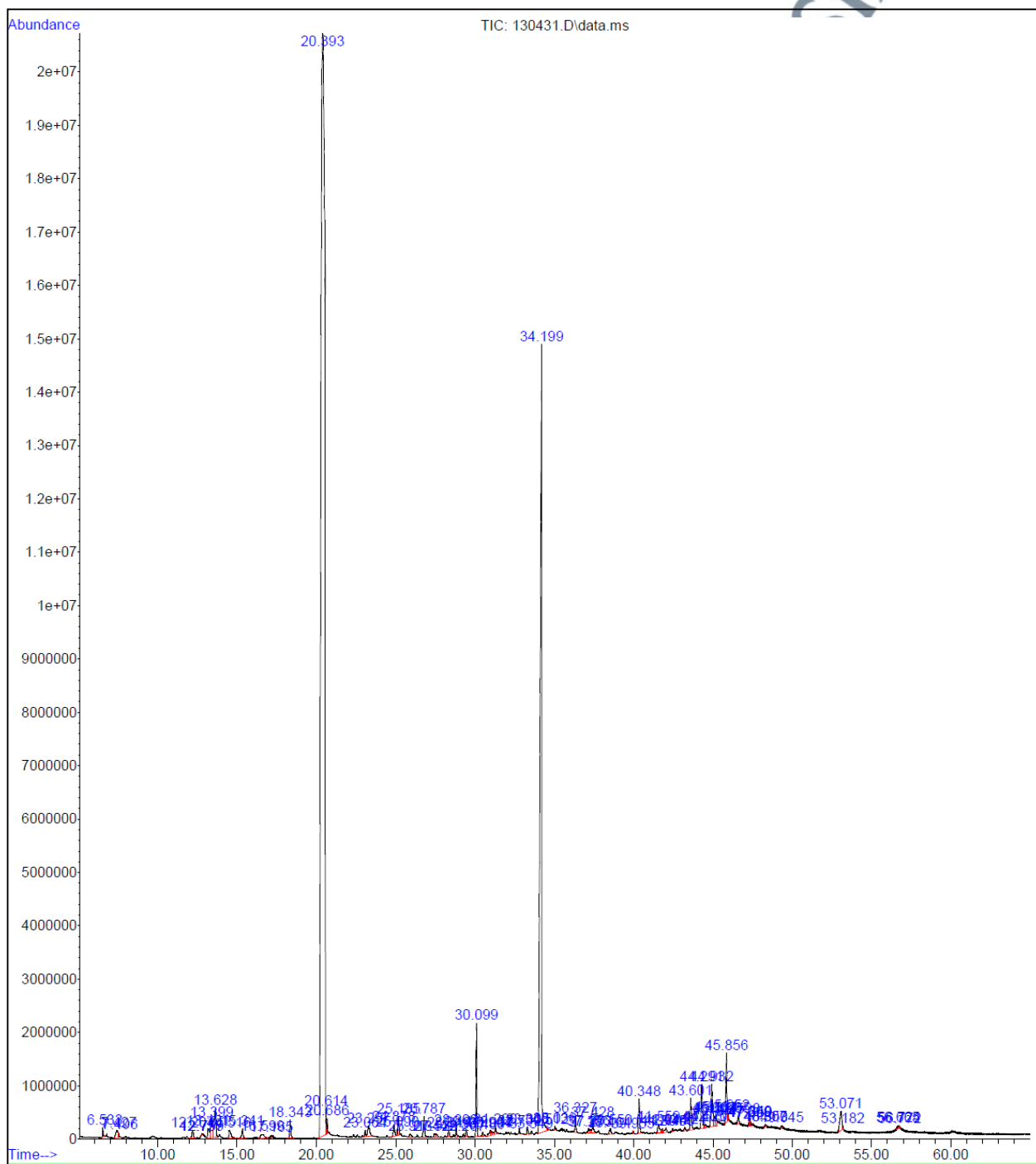
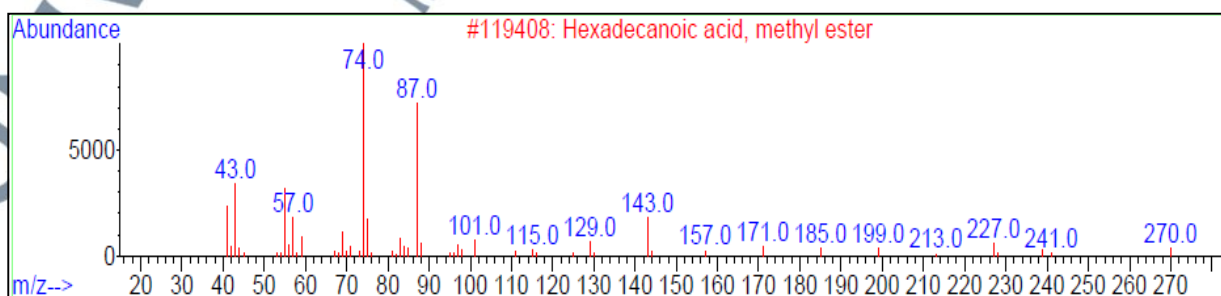
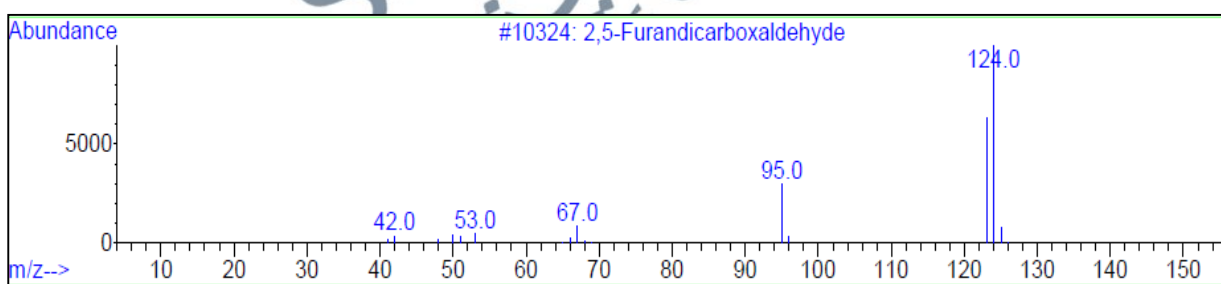
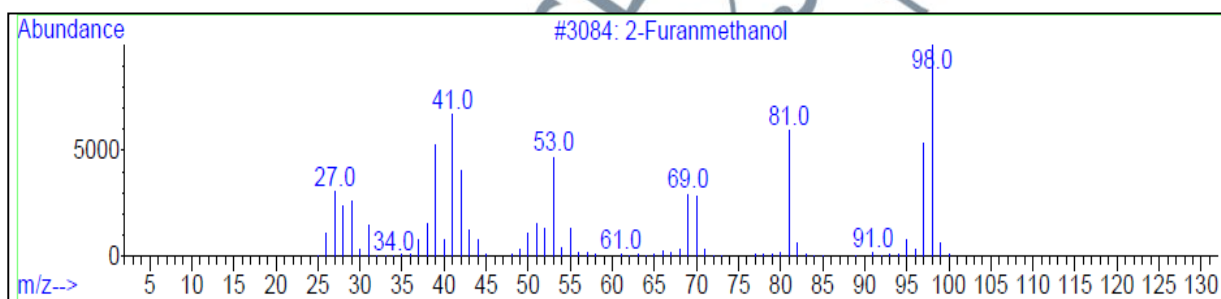
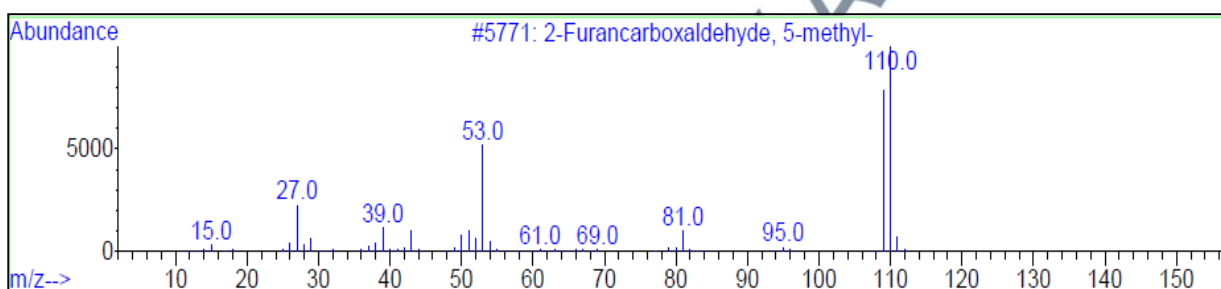
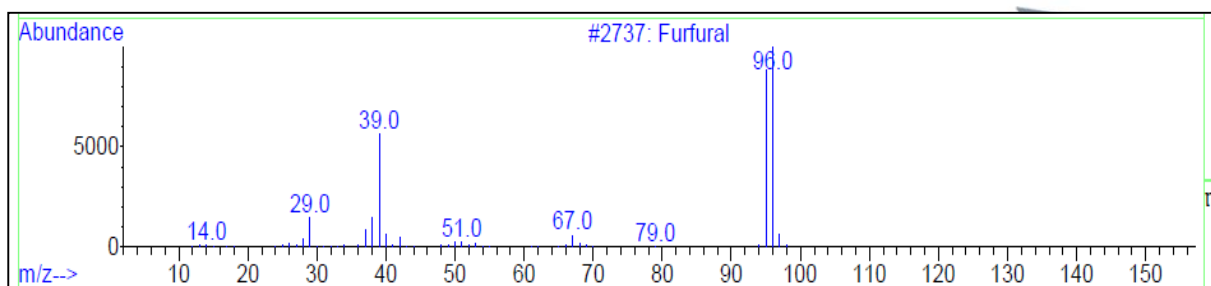
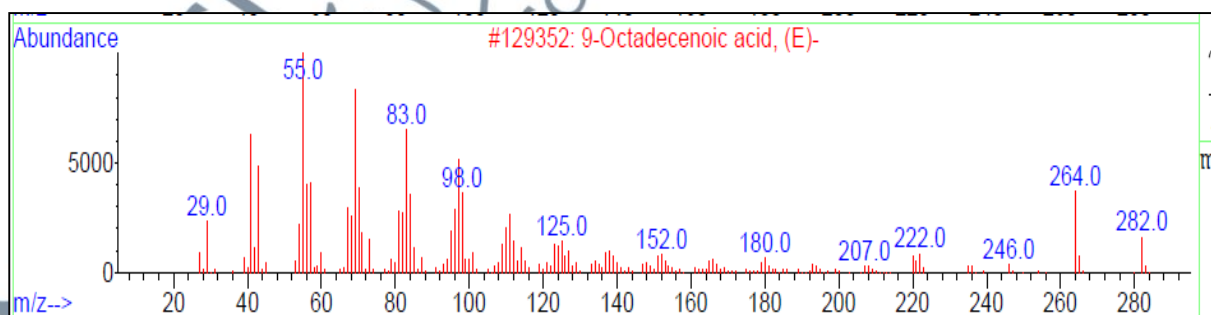
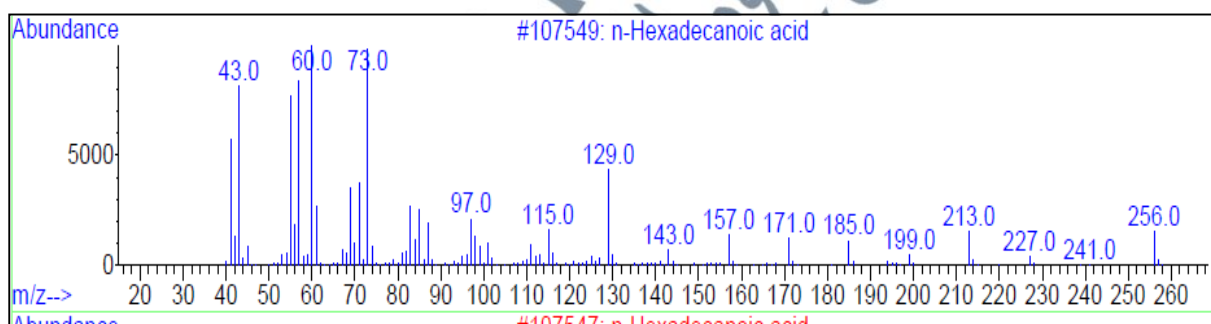
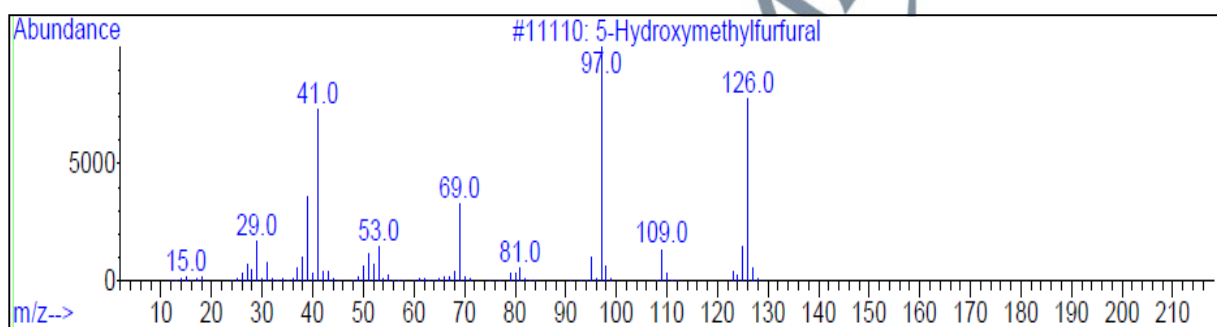
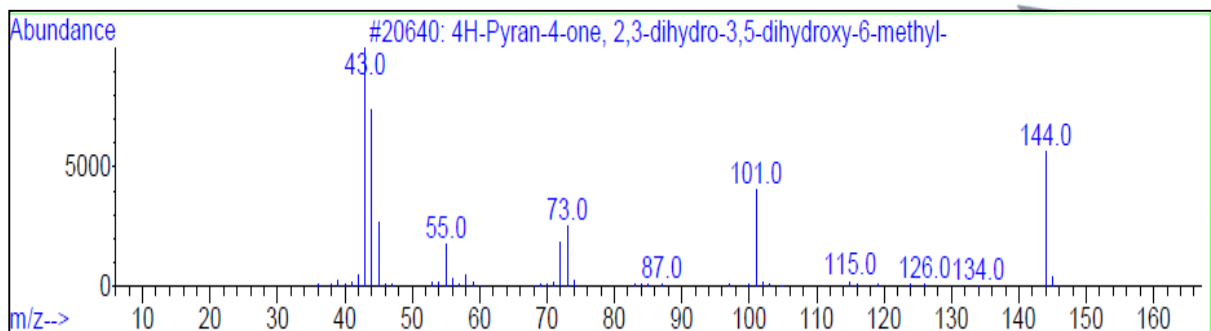
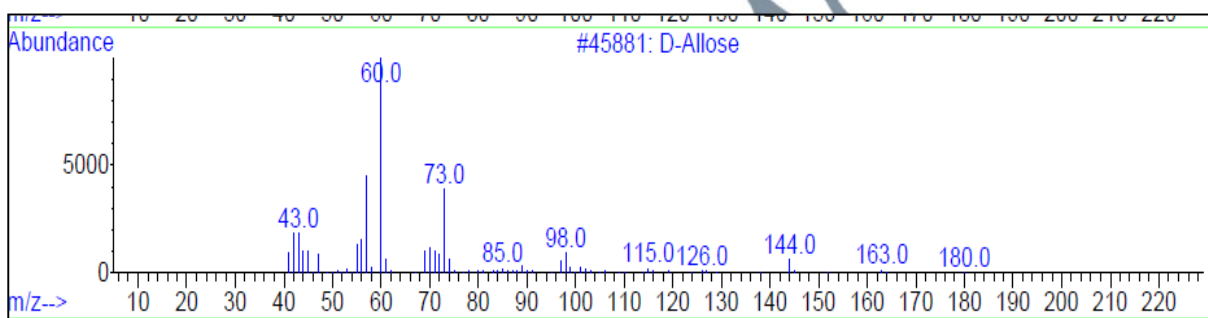
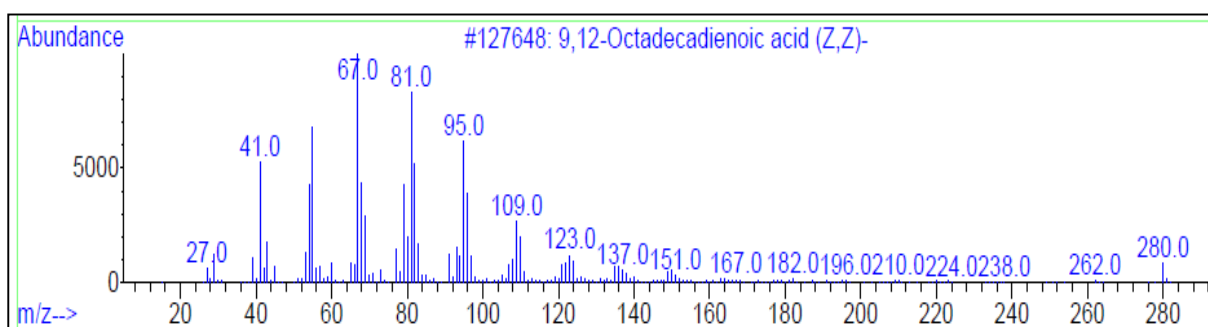


Figure 32: GC-MS of total compounds in Khalas date fruit sample extracted with Methanol - Chloroform (50 %- 50 %)





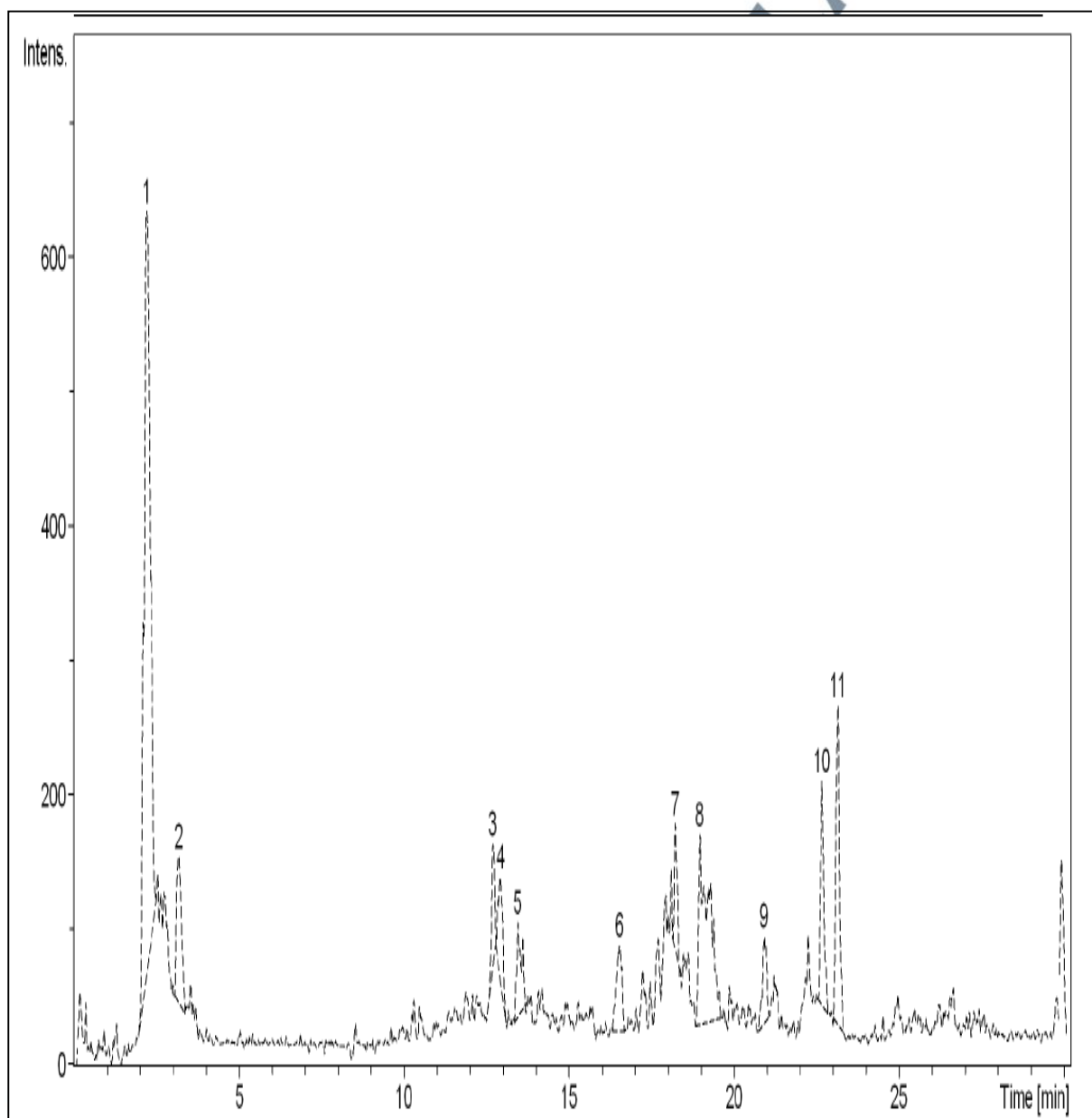


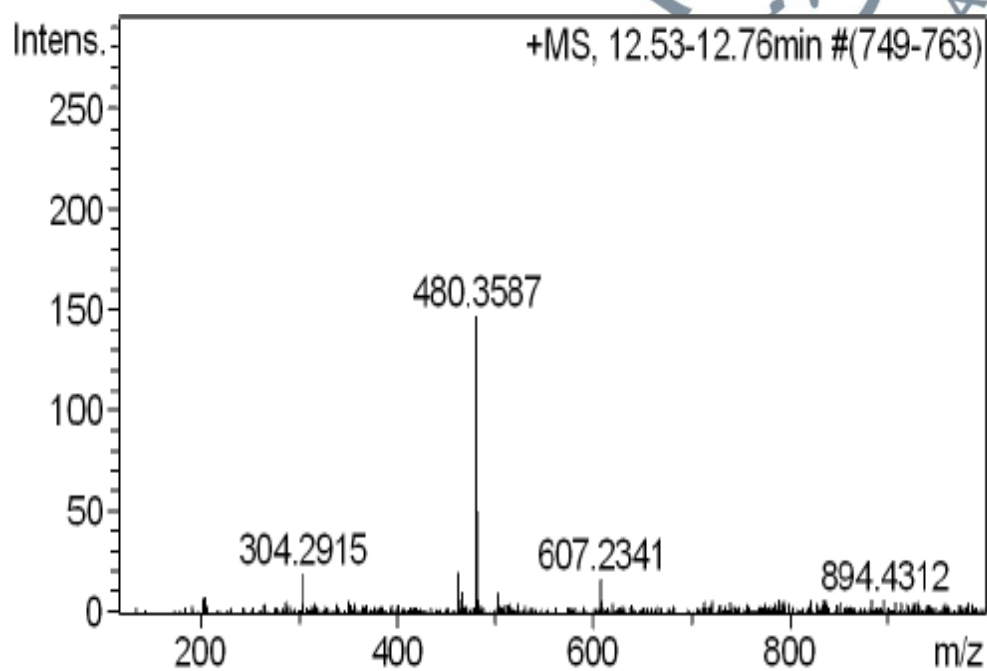
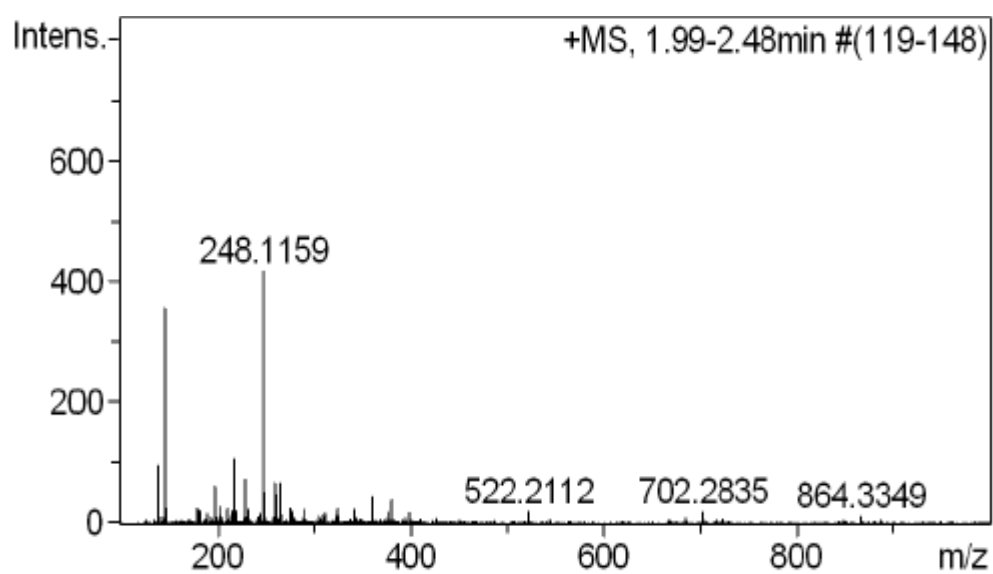


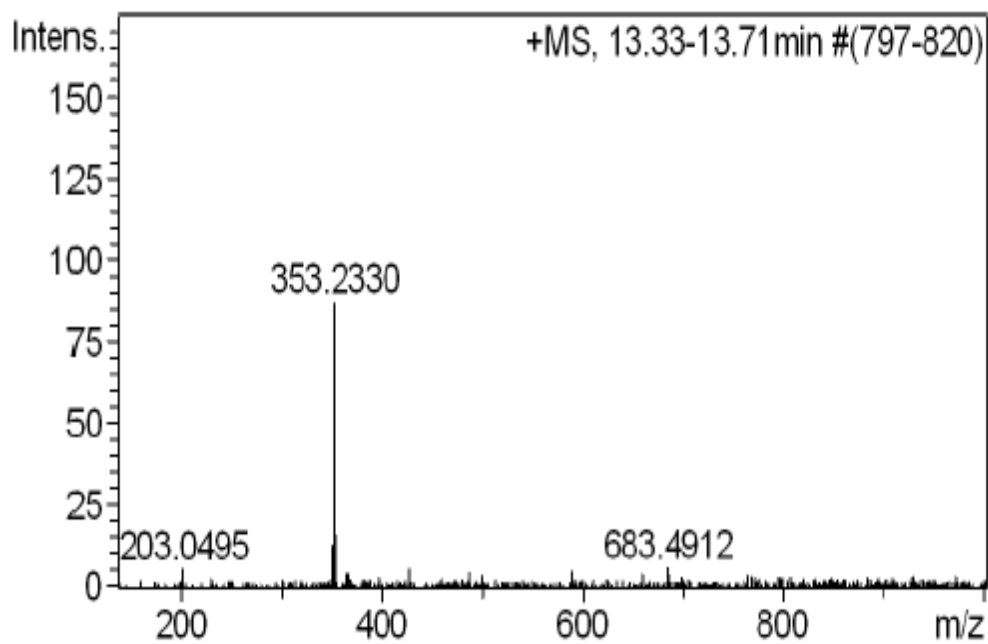
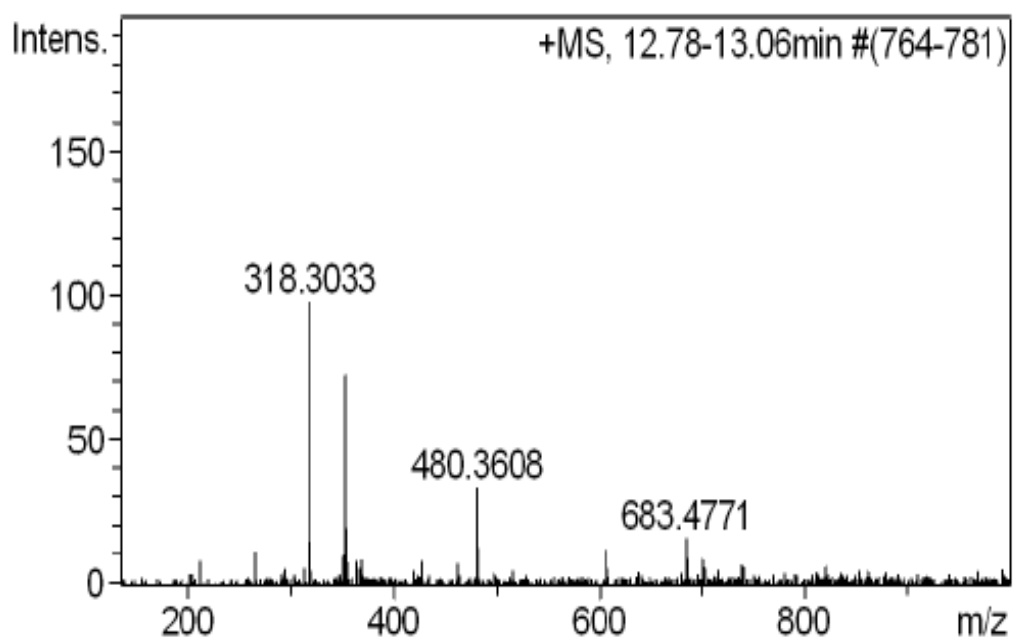
APPENDIX B

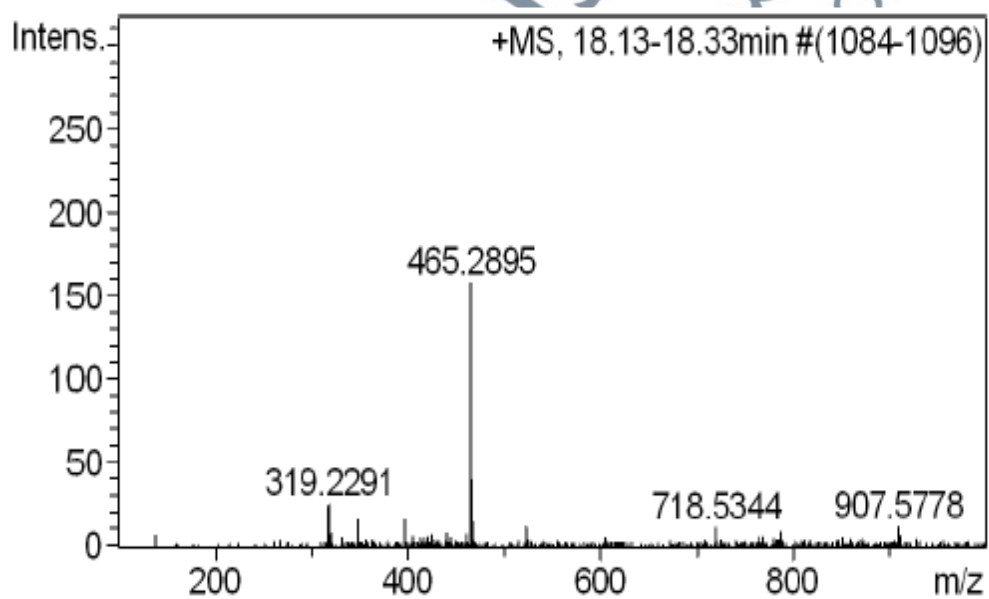
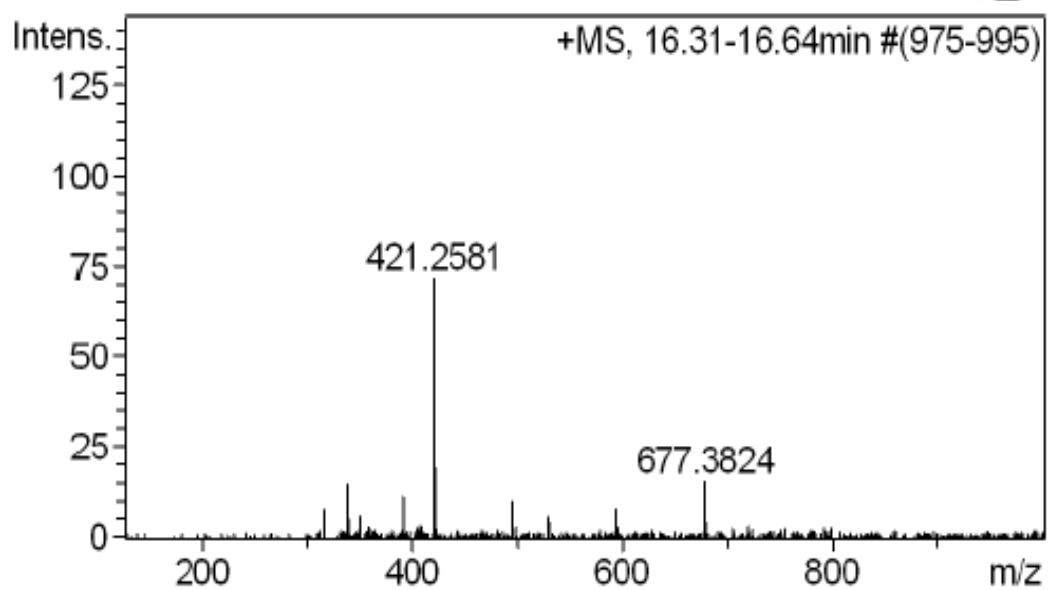
LC-TOF-MS Data

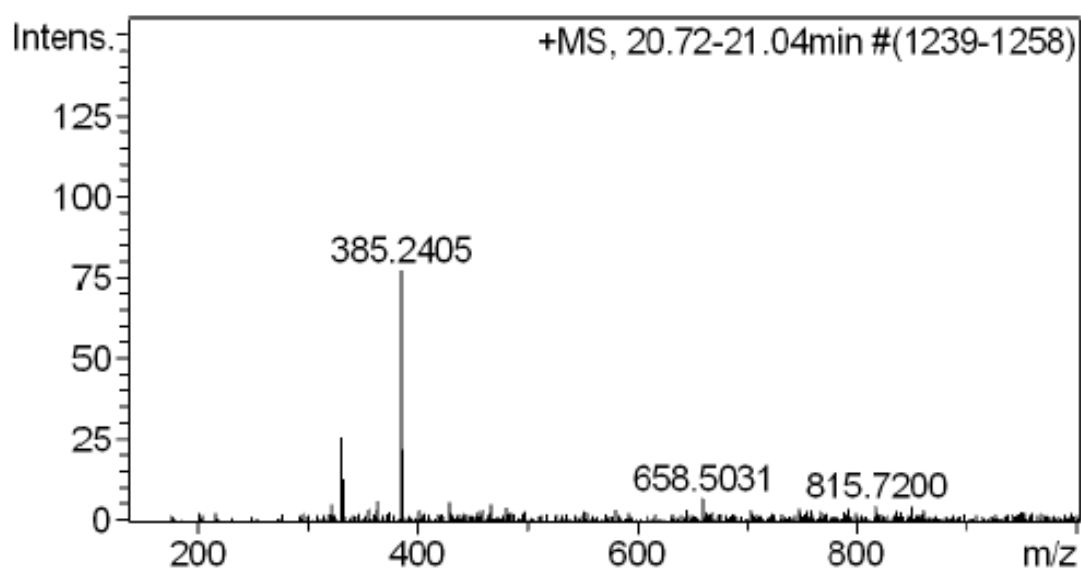
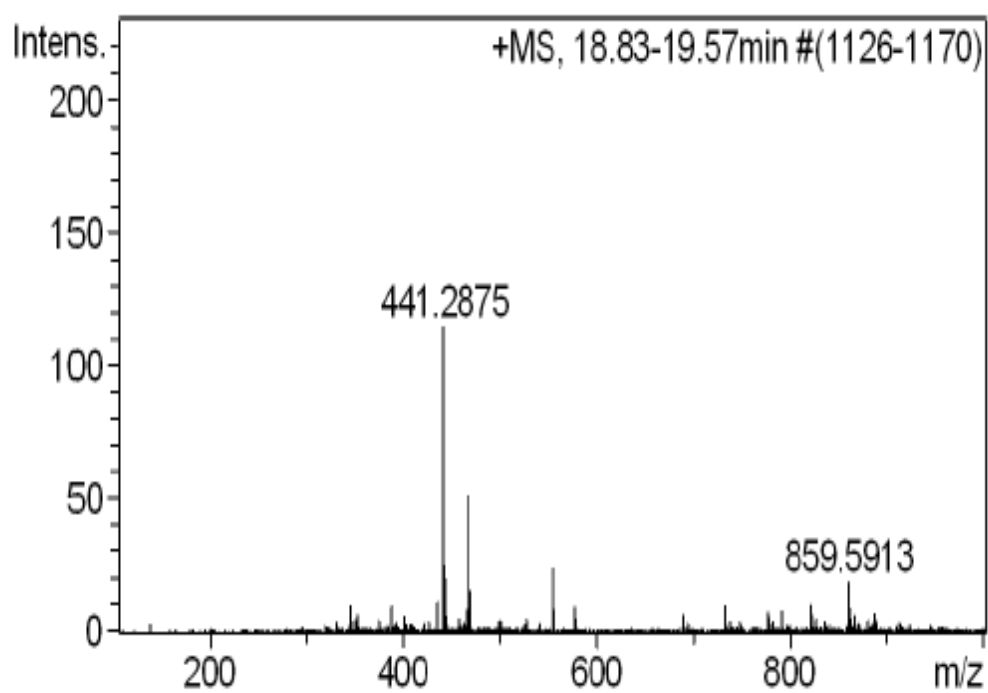
FIGURE 33: LC-TOF-MS of total compounds in Khalas date fruit sample extracted with Methanol - Chloroform (50 %- 50 %)











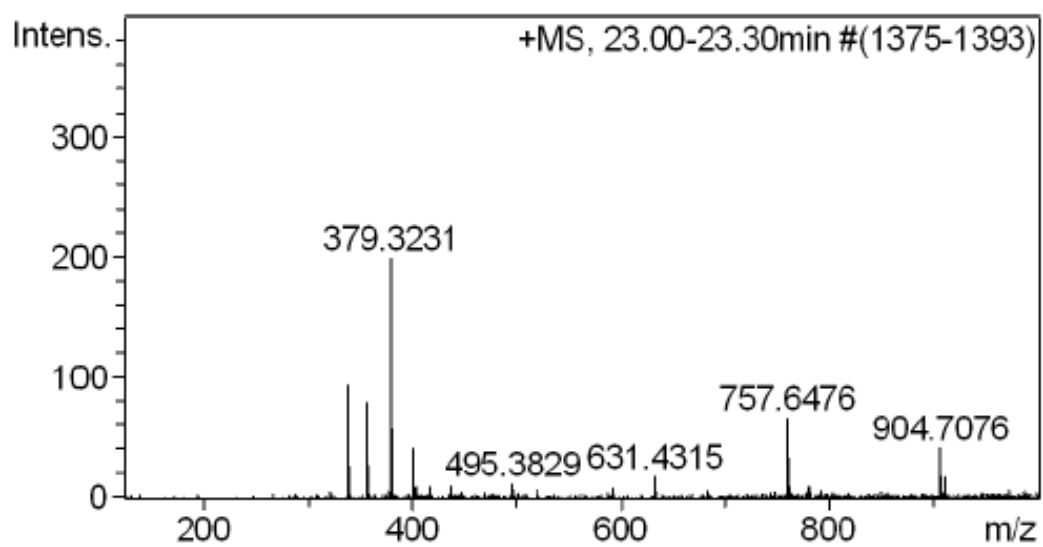
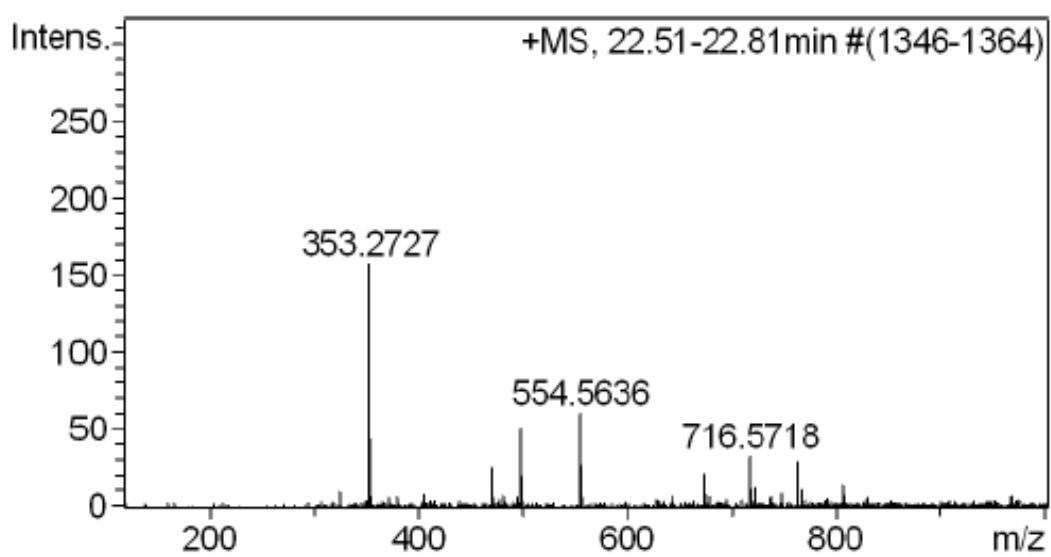
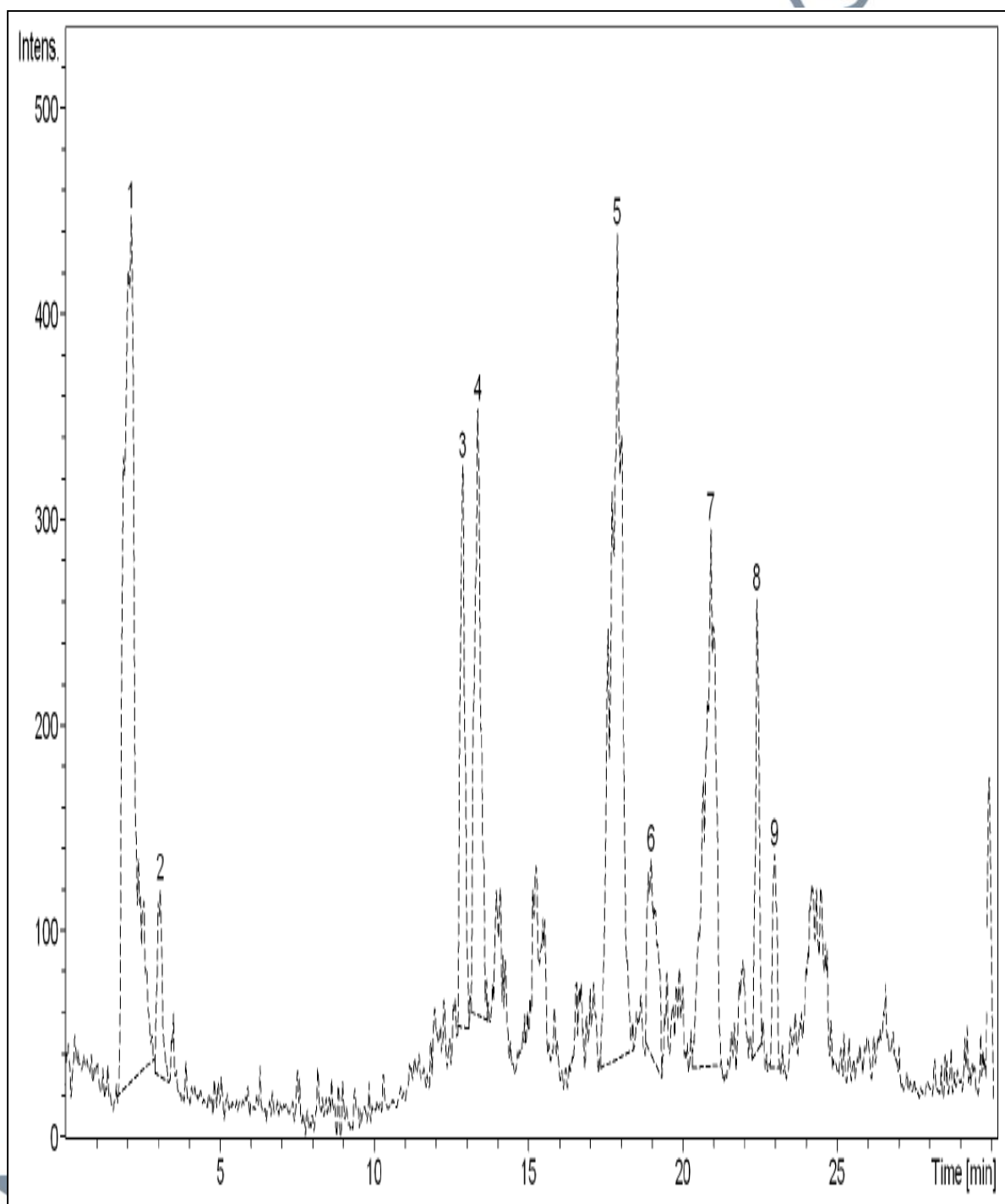
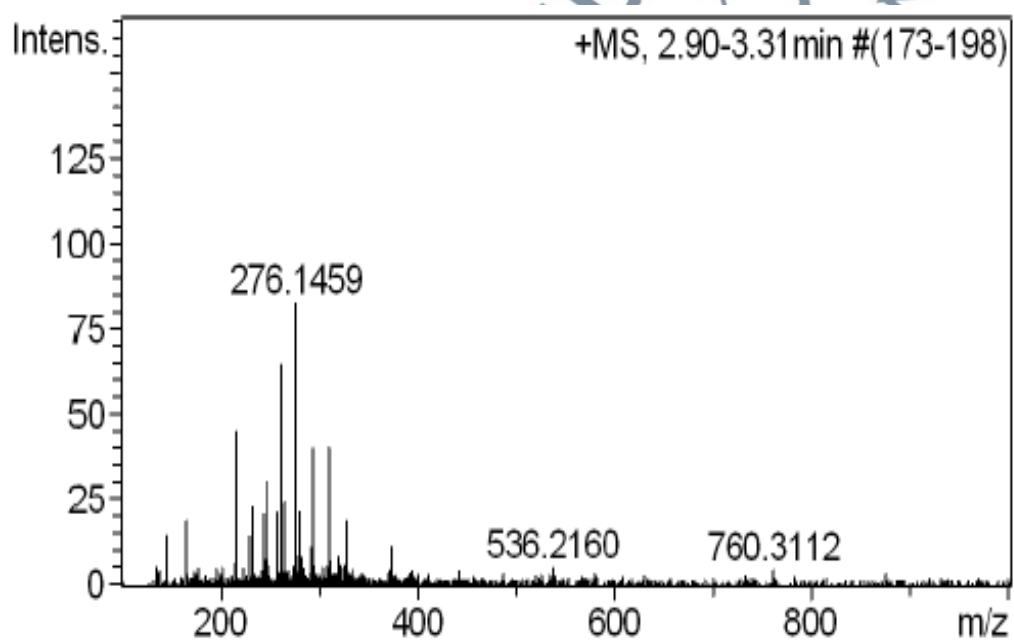
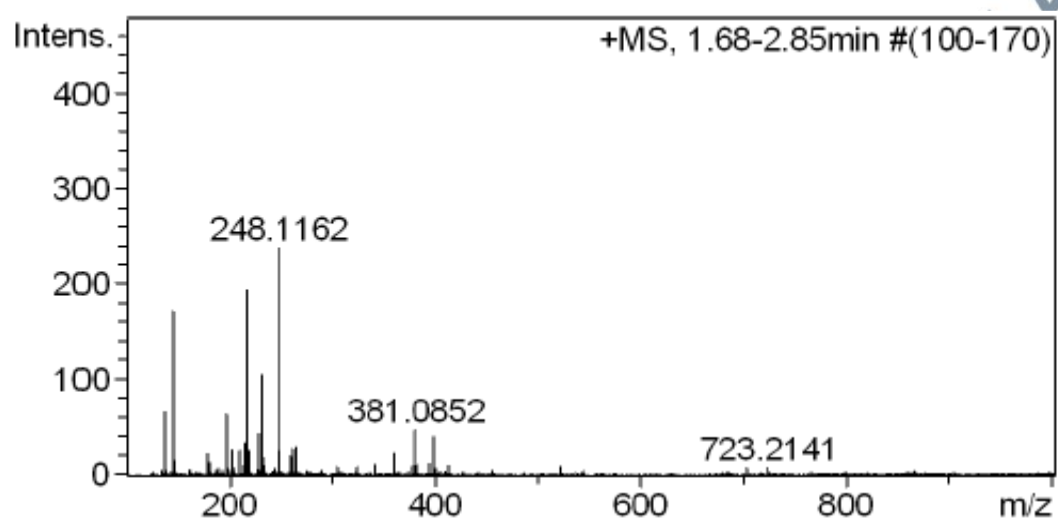
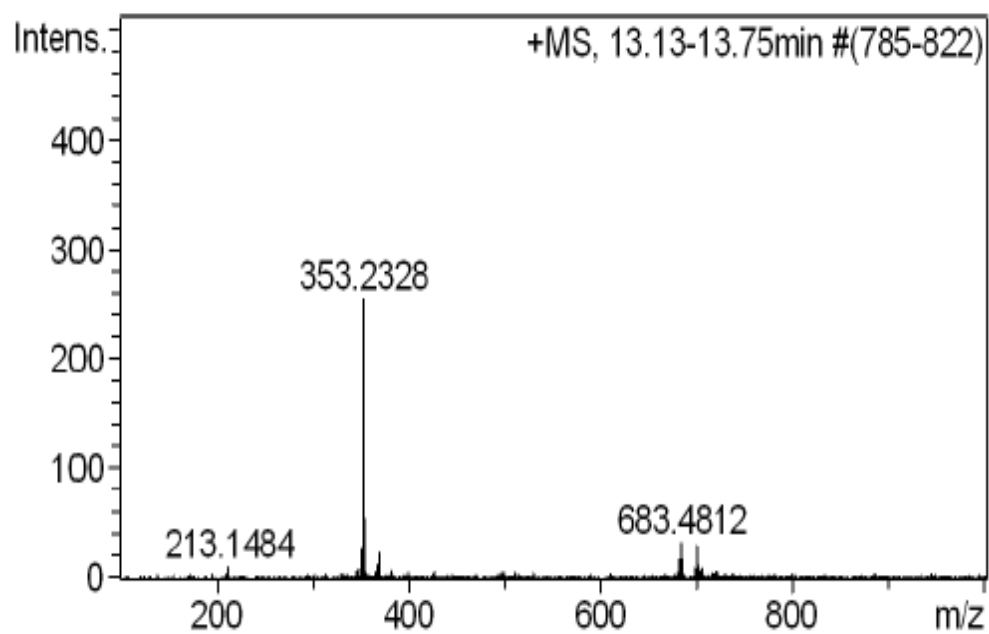
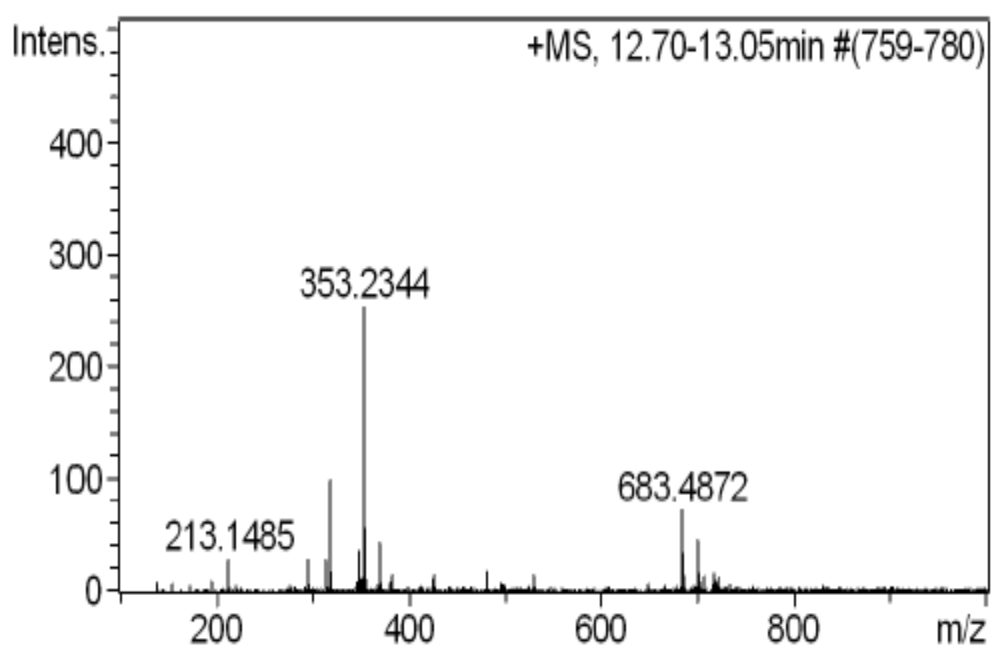
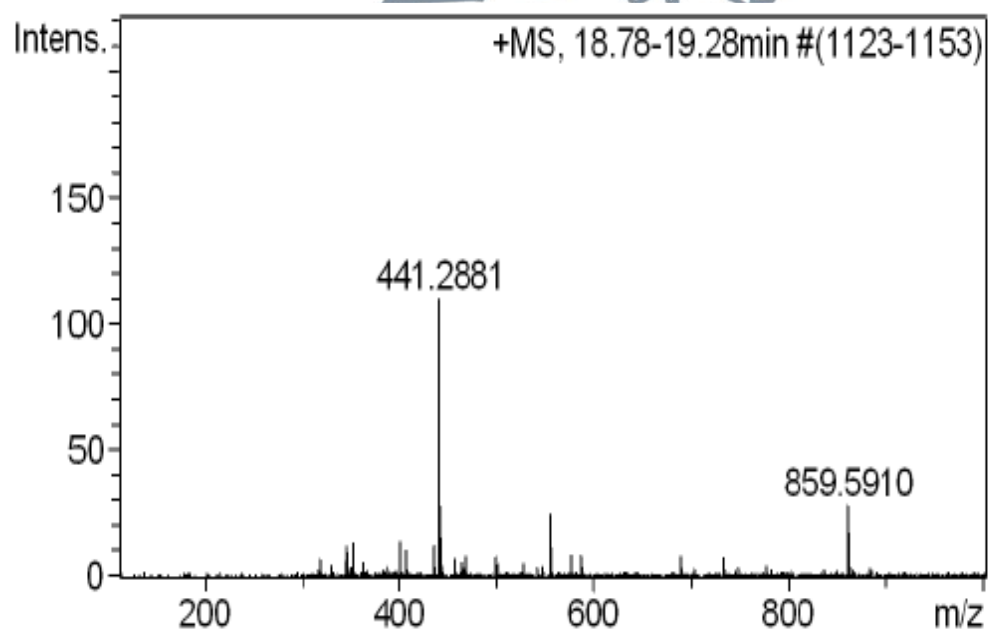
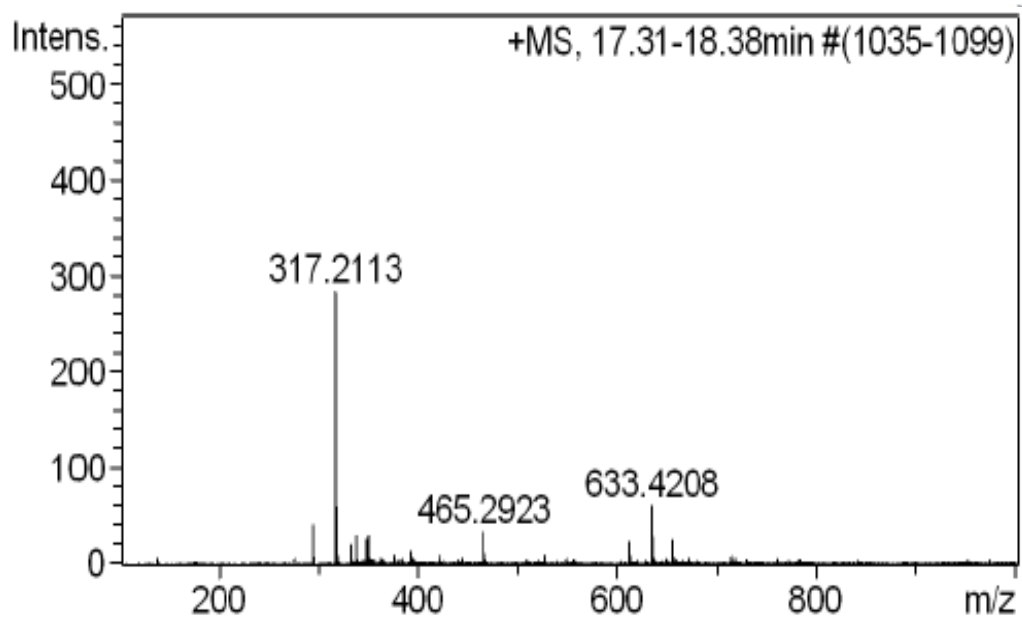


FIGURE 34: LC-TOF-MS of total compounds in Rutab date fruit sample extracted with Methanol - Chloroform (50 %- 50 %)









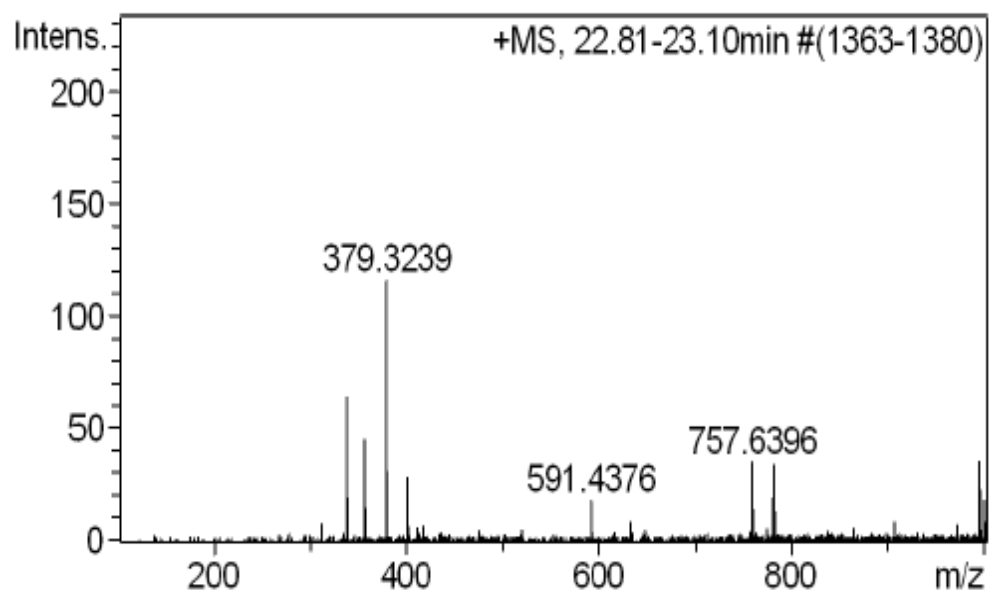
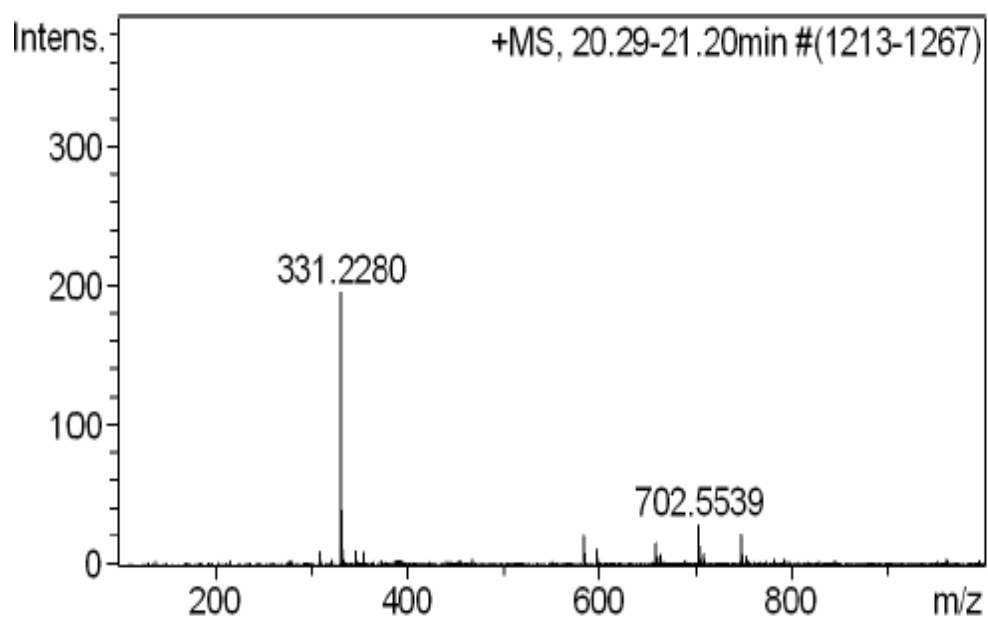
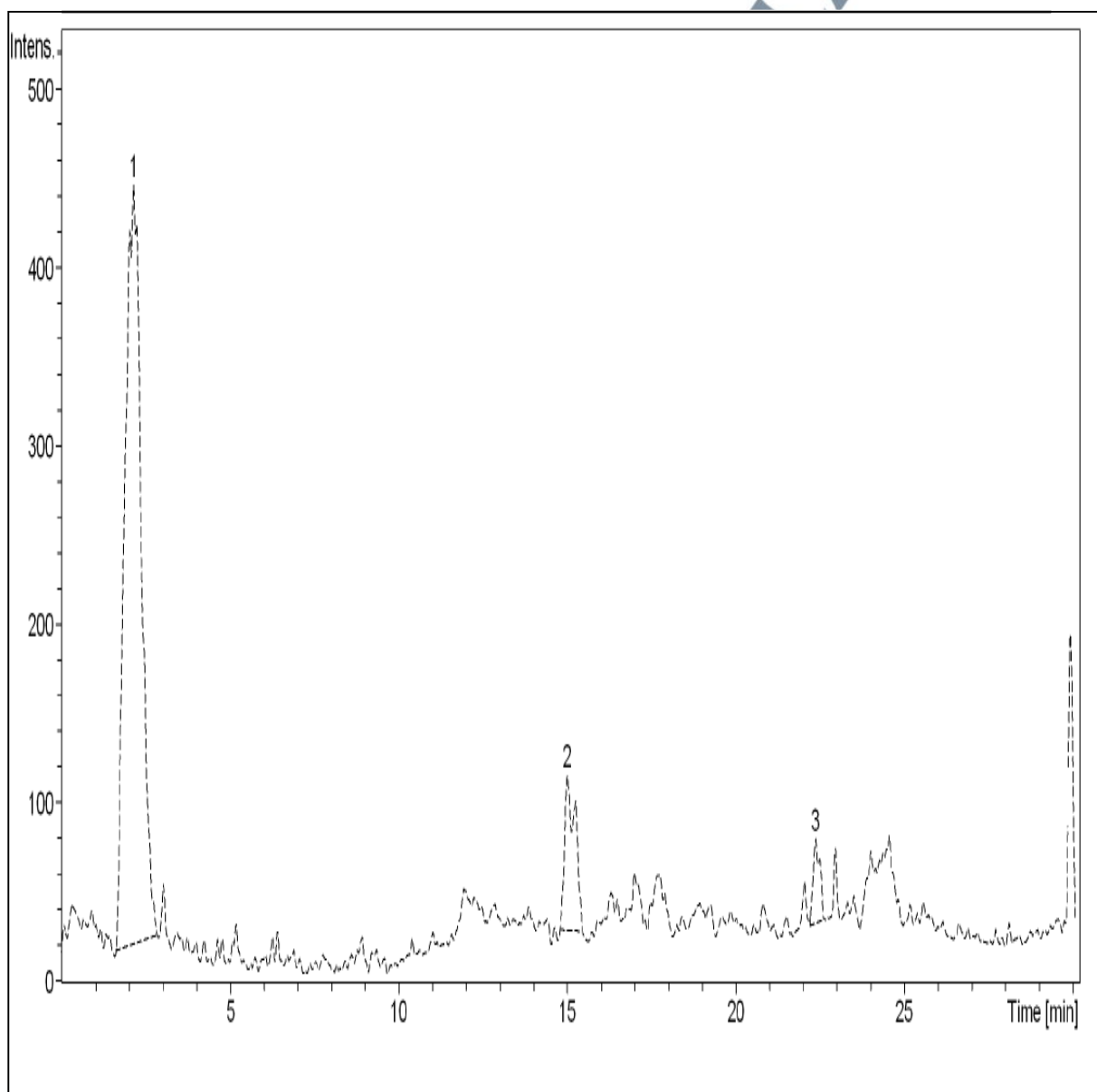
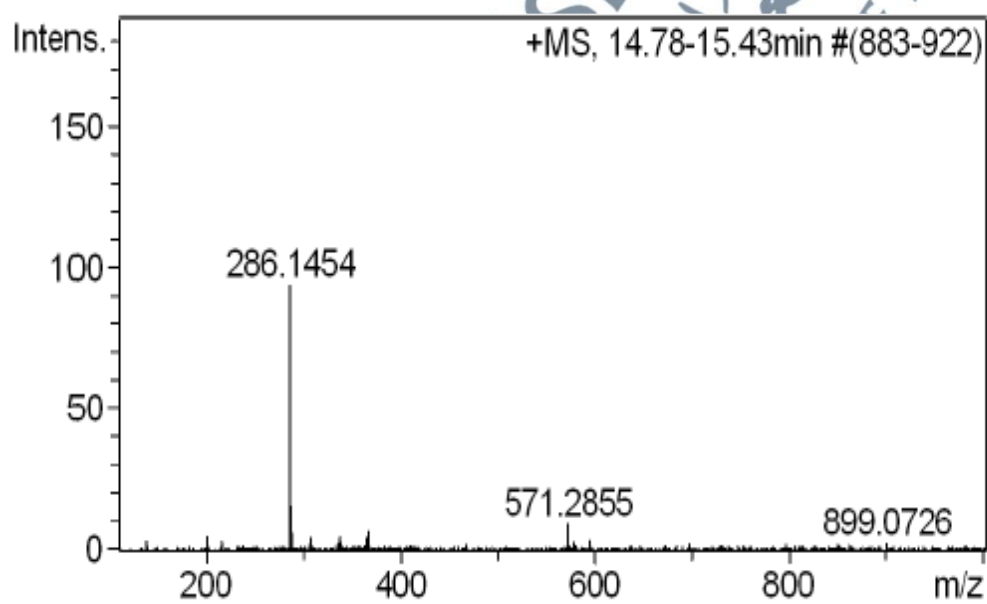
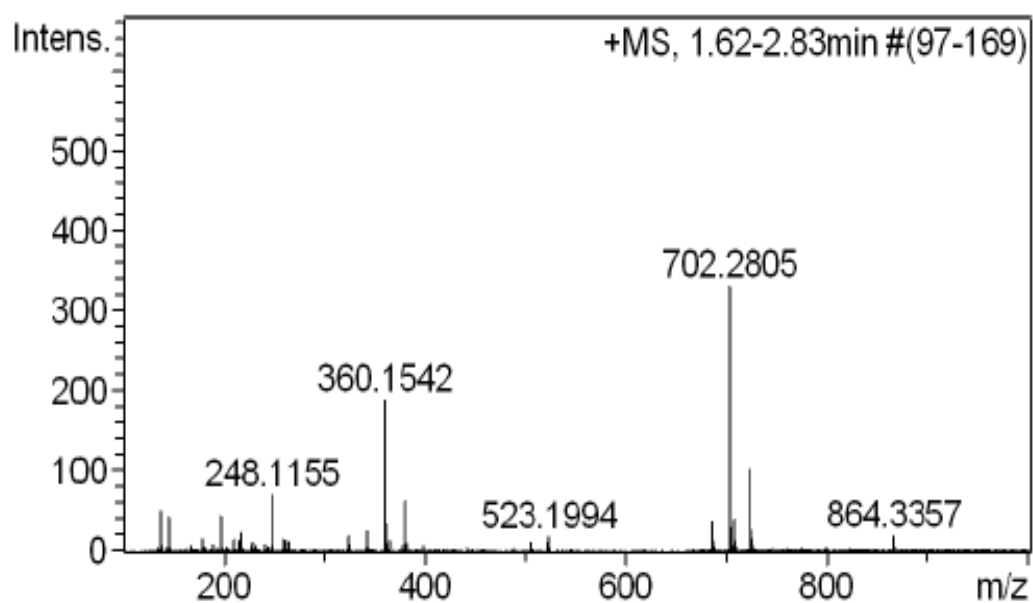
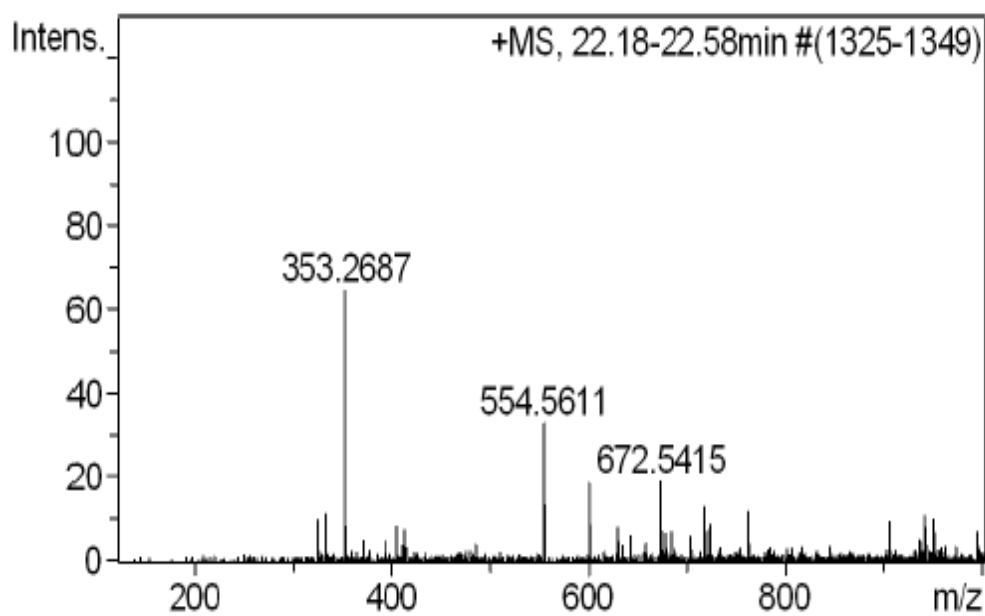


FIGURE 35: LC-TOF-MS of total compounds in Tamar date fruit sample extracted with Methanol - Chloroform (50 %- 50 %)







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APPENDIX C

Lists of Compounds

- | | |
|---|--|
| 1 = Glycolaldehyde dimethyl acetal | 21 = Tridecanoic acid |
| 2 = Furfural | 22 = D-Allose |
| 3 = 3-Furaldehyde | 23 = 2,5-Furandicarbo-xaldehyde |
| 4 = 2 -Furanmethanol | 24 = 4H-Pyran-4-one, 3,5-dihydroxy-2-.. |
| 5 = 9-Octadecene, (E) | 25 = Propanamine, N-methyl-N-nitroso- |
| 6 = 3-Octadecene, (E) | 26 = 5-Hydroxyme-thylfurfural |
| 7 = Cyclodecane, octyl | 27 = Octadecanoic acid |
| 8 = Orcinol | 28 = Octadecanoic acid, 2-(2-hydroxyetho-xy) ethyl ester |
| 9 = -Furancarboxy-lic acid, hydrazide | 29 = 9-Octadecanoic Acid |
| 10 = Furyl hydroxyl-methyl ketone | 30 = 6-Octadecenoic acid |
| 11 = 4H-Pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl | 31 = beta-D-Glucopyra-nose, 1,6-anydro |
| 12 = Ethyl 9-hexadecenoate | 32 = Acetamide, 2,2,2-trifluoro |
| 13 = Ethyl Oleate | 33 = Acetic acid, trifluoro |
| 14 = (E)-9-Octade-cenoic acid ethyl ester | 34 = Hexadecanoic acid, methyl ester |
| 15 = 5-Hydroxy-methylfurfural | 35 = Pentadecanoic acid, 14-methyl-, methyl ester |
| 16 = n-Hexadecanoic acid | 36 = 9-Octadecenoic acid, (E) |
| 17 = Octadec-9-enoic acid | 37 = 2-Furancarboxaldehyde, 5-methyl |
| 18 = cis-Vaccenic acid | 38 = Maltol |
| 19 = Oleic Acid | |
| 20 = 9,12-Octadeca-dienoic acid (Z,Z) | |

APPENDIX D

Mixture Design

M = 100 % Methanol

CH = 100 % Chloroform

H = 100 % Hexane

M 14 + CH 6 = 70 % Methanol + 30 %
chloroform

M 6 + CH 14 = 30 % Methanol + 70 %
chloroform

M 10 + CH 10 = 50 % methanol + 50 %
chloroform

M 14 + H 6 = 70% Methanol + 30 %
Hexane

H 14 + M 6 = 70 % Hexan + 30 %
methanol

H 10 + M 10 = 50 % Hexane + 50 %
methanol

CH 14 + H 6 = 70 % Chloroform + 30 %
Hexane

CH 6 + H 14 = 30 % Chloroform + 70
% Hexane

CH 10 + H 10 = 50 % Chloroform + 50
% Hexane

M + CH + H = 33.3 % Methanol + 33.3 %
Chloroform + 33.3 % Hexane