

Odor Analysis Jam (Different kind of Fruits Jam)

(Pyrolyzer JCI-22 + mini-PAT with the following devise to trap odor)

Trap Sample tube mini-PAT

Quartz Glass Sample Tube
ID: 4mm Length: 36mm
Absorbent :Tenax GR 25mg
Pyrofoil :F280



Sample Purge Gas

N₂. 100ml/min 0.1Mpa

Flow Controller

FWC-5

Sample purge gas

Dry purge gas

Curie Point Injector JCI-22



Teflon Chamber

160ml

Stirrer

mini-PAT

Dry Purge Gas

N₂. 100ml/min 0.1Mpa

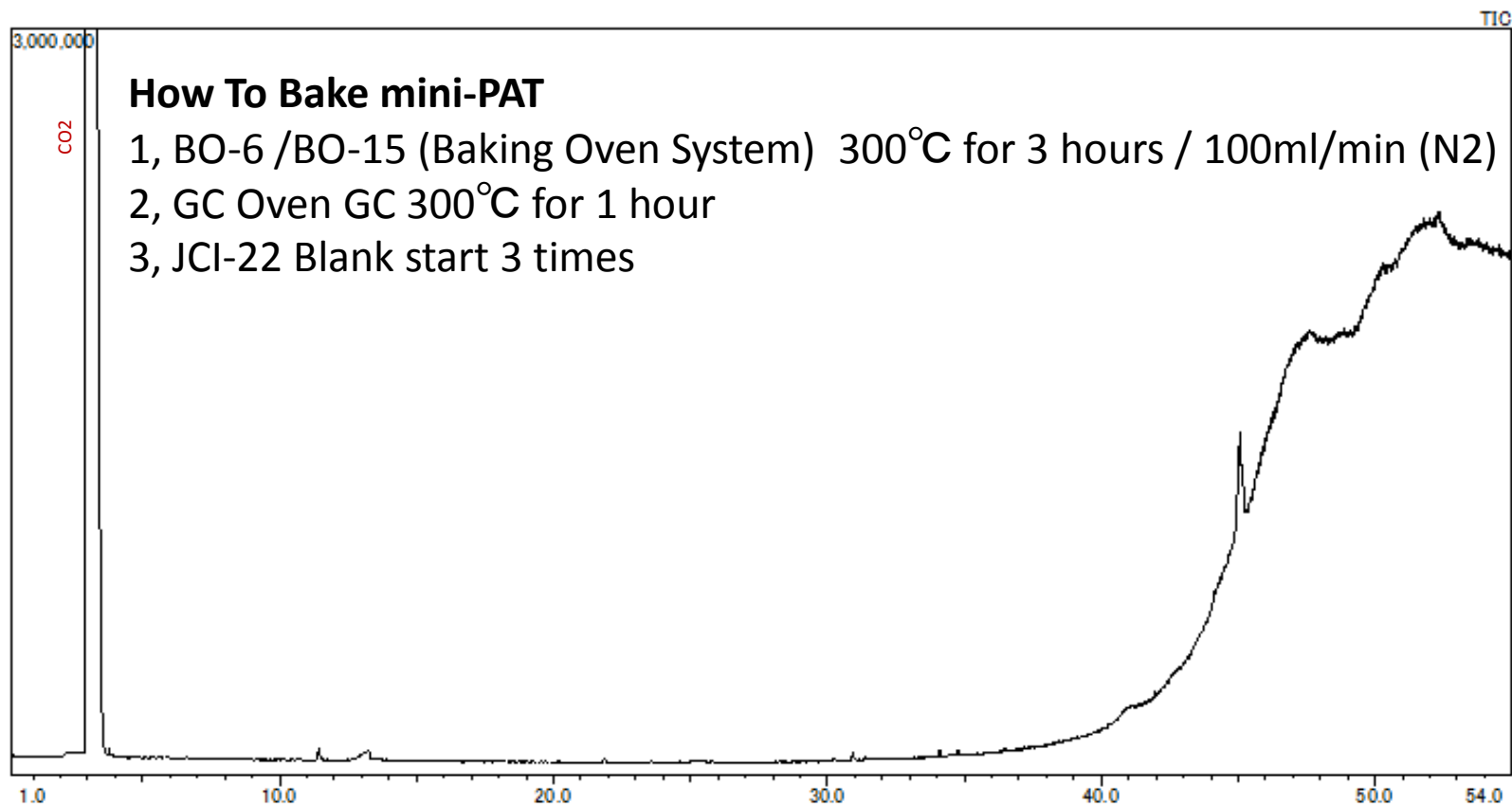


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Preparation 1 mini-PAT Blank

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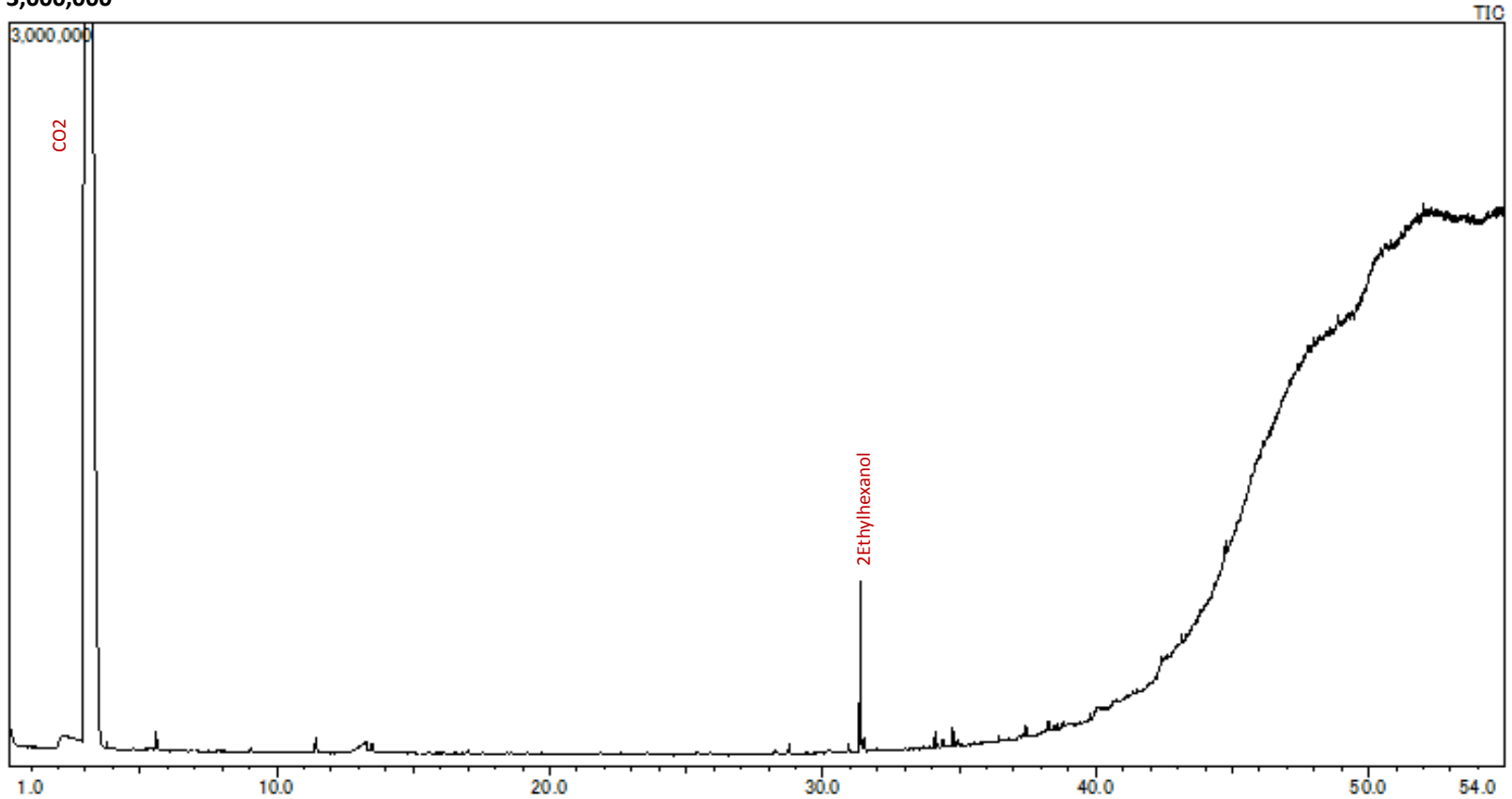
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Preparation 2

Contamination in Pure Water 50ml

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* Against each Jam sample 20g, added 50mL pure water before using Stirrer.



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GC-2010			
Equivalent time	3 min		
Oven temperature	Initial	35°C	5 min
	Rate-1	3°C/min	
	Final-1	100°C	0 min
	Rate-2	8°C/min	
	Final-2	250°C	10 min
Analysis time	55.42 min		
Interface temperature	250°C		
Column flow rate	1.0ml/min		
Split ratio	1:10		

QP-2010			
Ion source temperature	200°C		
Mass range	29-500		
EM gain	0.95 kv		
Solvent cut	0 min		
Scan time	0.2 min ~ 55 min		

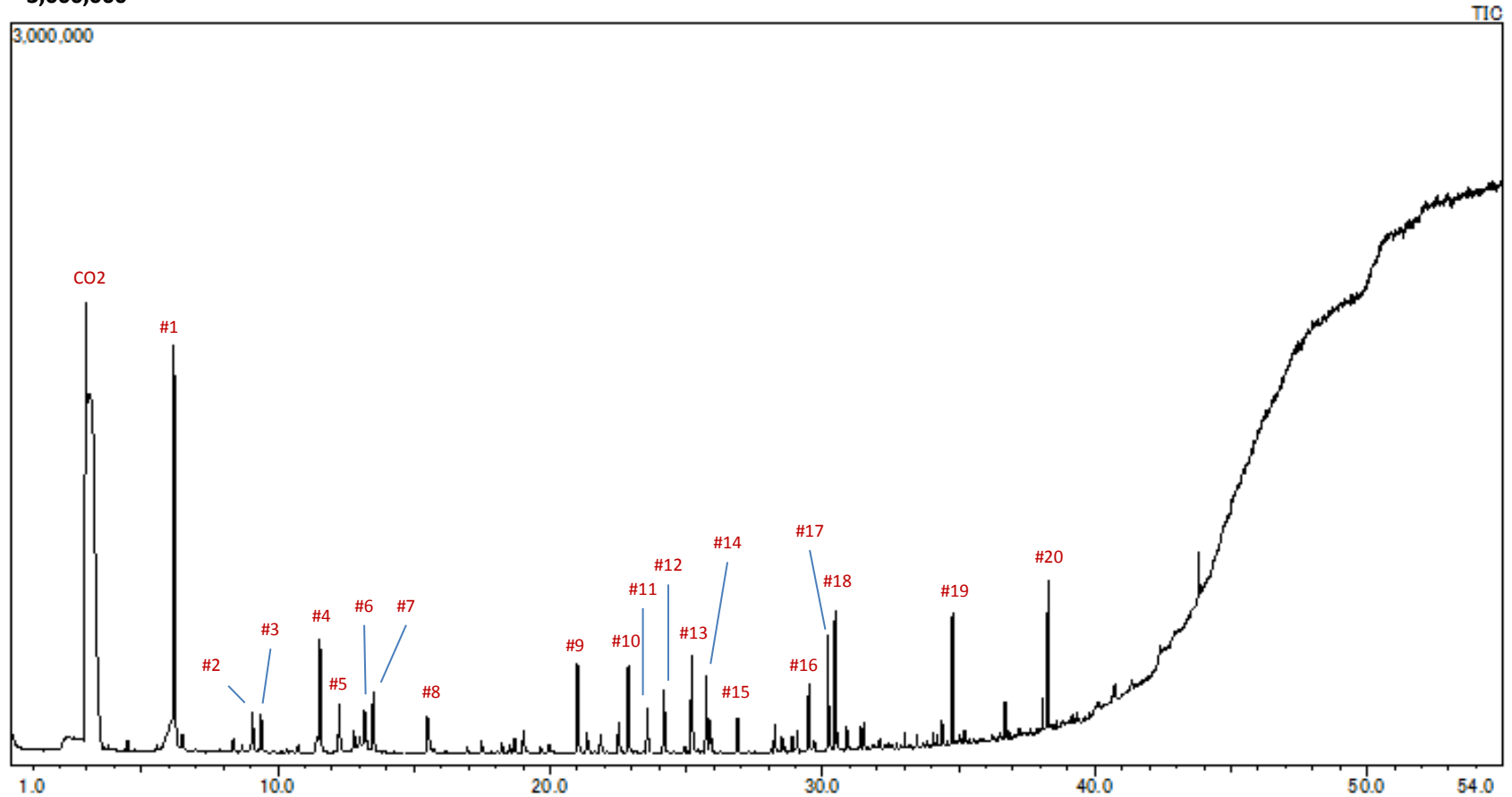
Column			
DB-WAX	Inside diameter	0.25 mm	
	Length	60 m	
	Film thickness	0.25 um	



Odor Analysis

Mix Jam (Strawberry, Apple, Grape)

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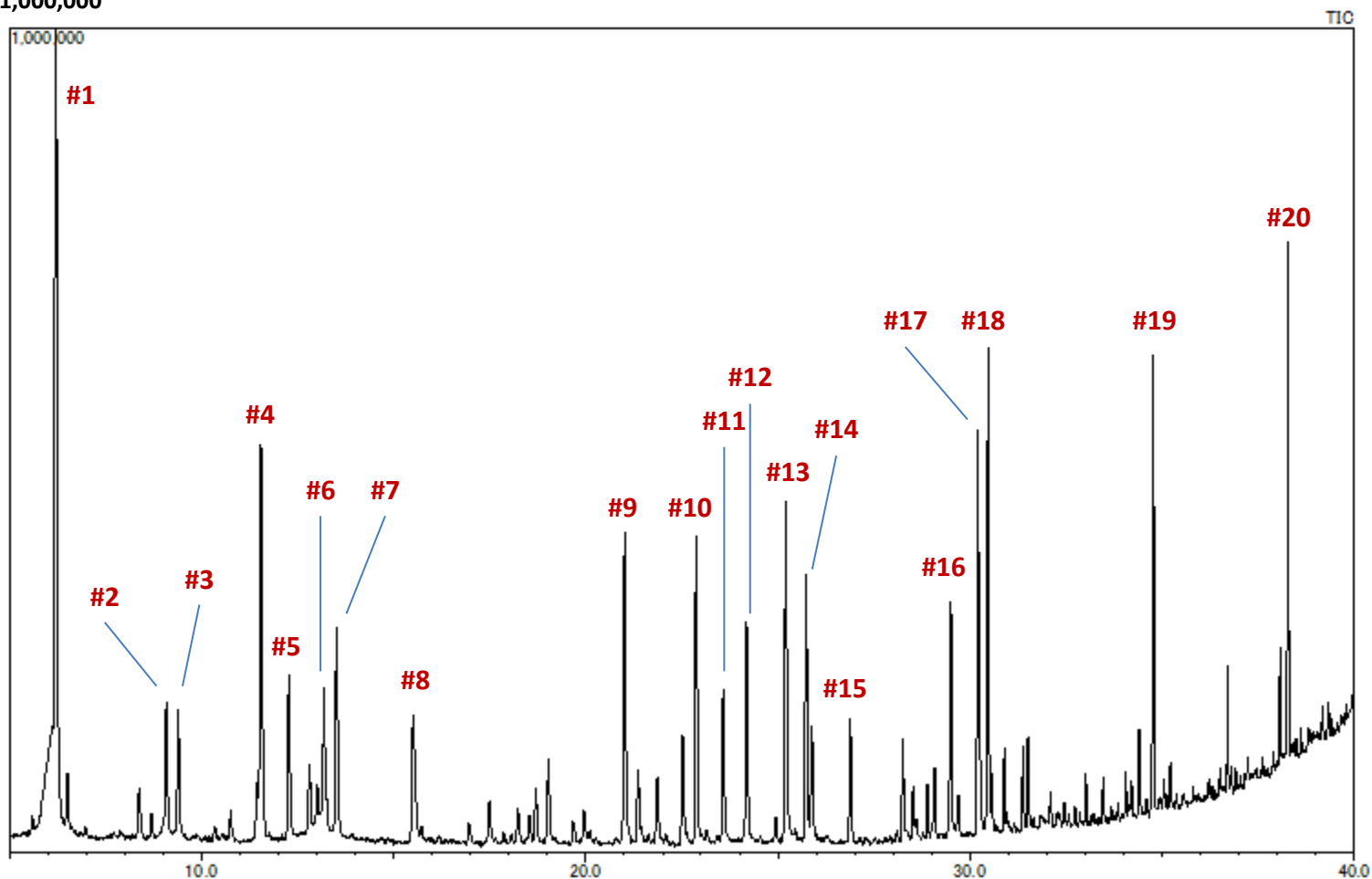
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Enlarged view

Odor Analysis

Mix Jam (Strawberry, Apple, Grape)

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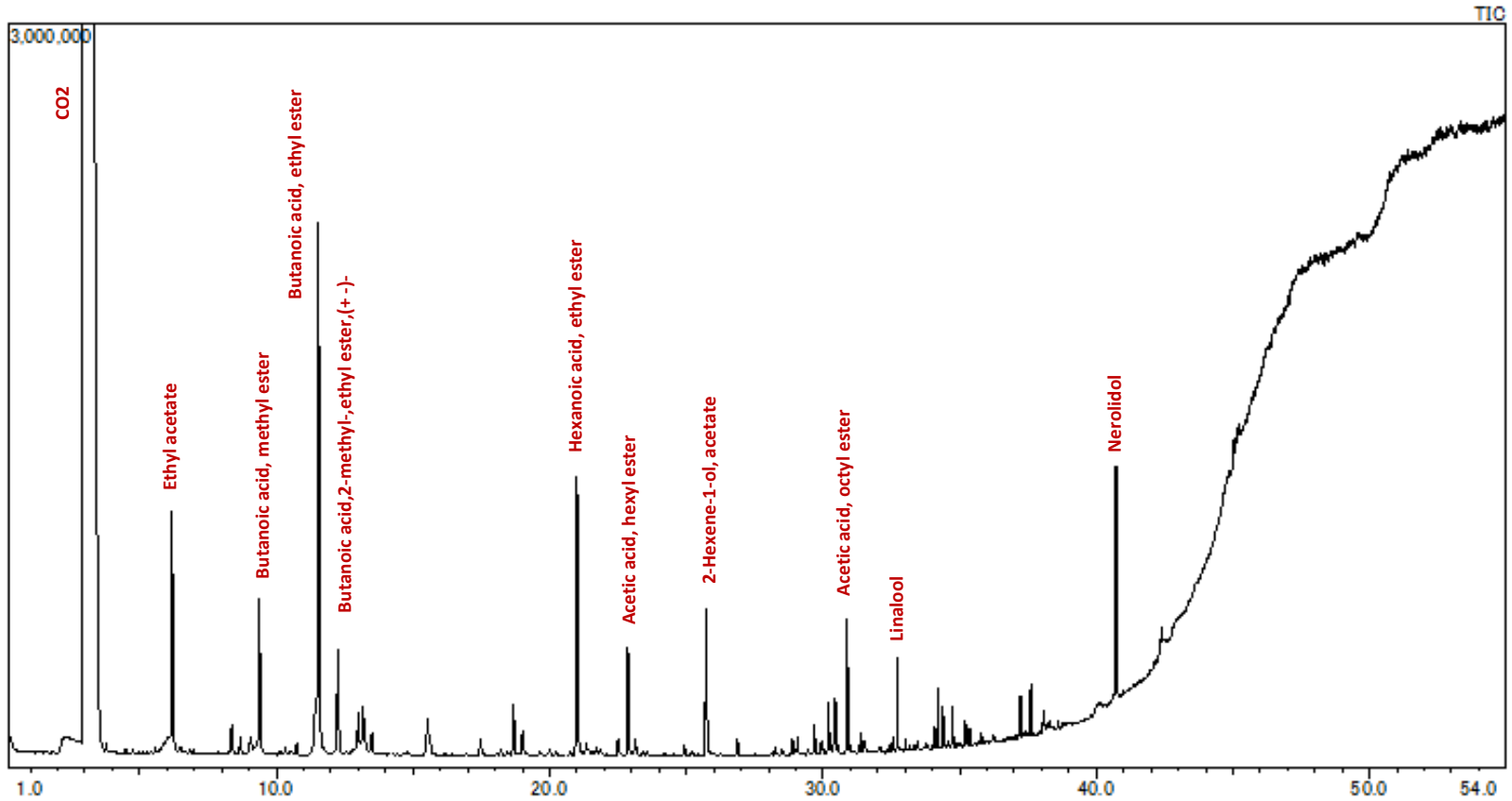
Peak List

Peak No.	Ritention time	Compound name	Odor Kinds
# 1	6.198	Ethyl acetate	Fruit flavor
# 2	9.076	Imidazole	
# 3	9.387	Butanoic acid, methyl ester	Fruit flavor
# 4	11.544	Butanoic acid, ethyl ester	Banana Pineapple
# 5	12.265	Butanoic acid,2-methyl-,ethyl ester,(+ -)-	Apple
# 6	13.181	Butyl acetate	Apple, Banana
# 7	13.508	Hexanal	Grass green smell
# 8	15.501	Isoamyl acetate	Banana, Melon
# 9	21.009	Hexanoic acid, ethyl ester	Apple, Japanese Sake
# 10	22.875	Acetic acid, hexyl ester	Apple, Flower smell
# 11	23.575	Octanal	Fruit flavor
# 12	24.185	1-Octen-3-one	Japanese Sake smell
# 13	25.202	2-Heptenal, (Z)-	Aged person smell
# 14	25.738	2-Hexene-1-ol, acetate	Grass green smell
# 15	26.885	Hexanol	Green beans smell
# 16	29.504	2-Octenal, (E)-	Aged person smell
# 17	30.202	Acetic acid	Vinegar
# 18	30.469	Furfural	Almond
# 19	34.773	2-Decenal, (E)-	Aged person smell
# 20	38.276	Geranyl acetone	



Odor Analysis Strawberry Jam

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Acetic acid, octyl ester: Fruity artificial sweetening

Linalool: Lily, Lavender smell

Nerolidol: Ethyl caproate (Ethyl hexanoate) Apple smell



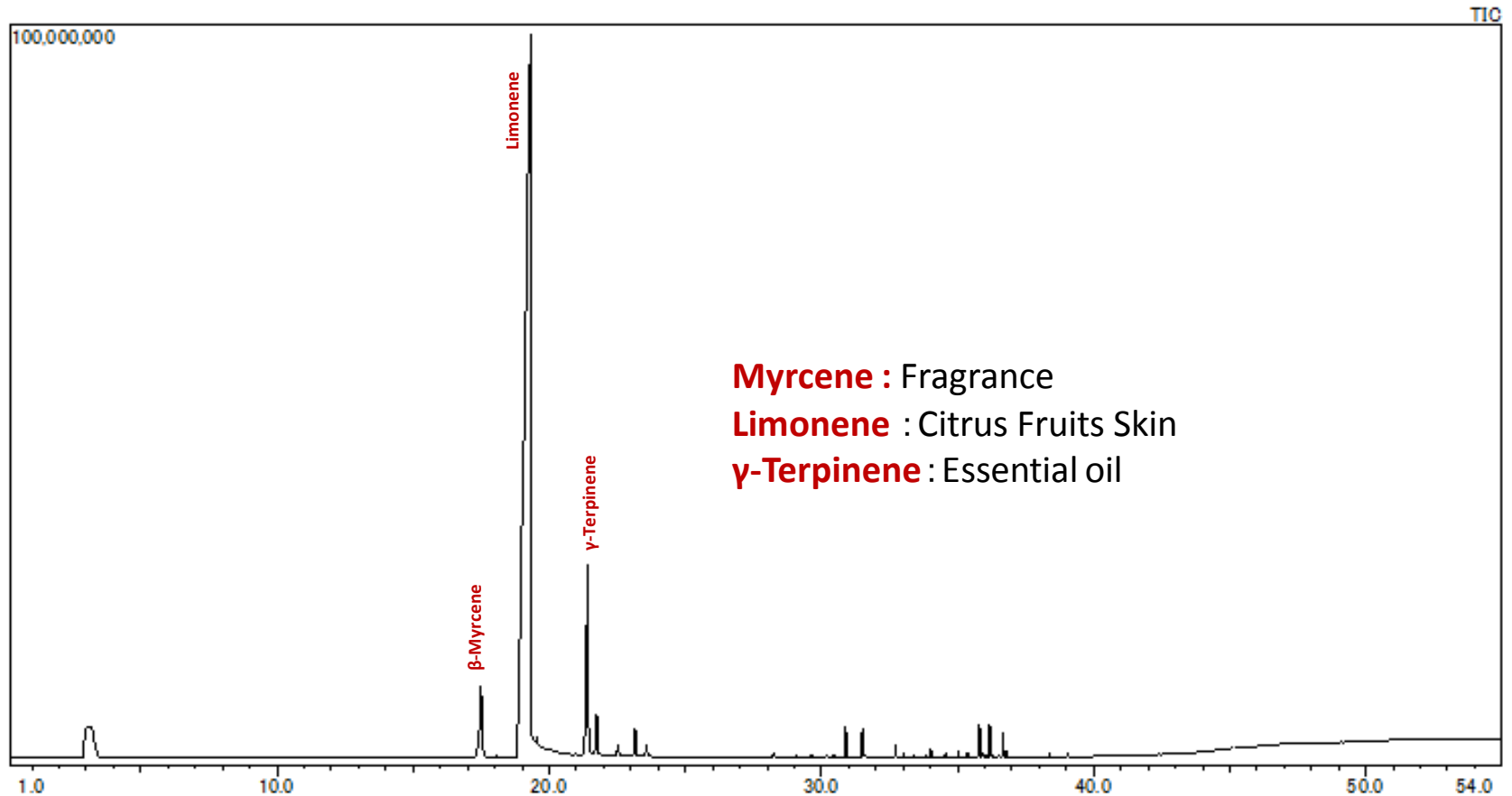
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Odor Analysis

Orange Marmalade Jam

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Myrcene : Fragrance

Limonene : Citrus Fruits Skin

γ-Terpinene : Essential oil



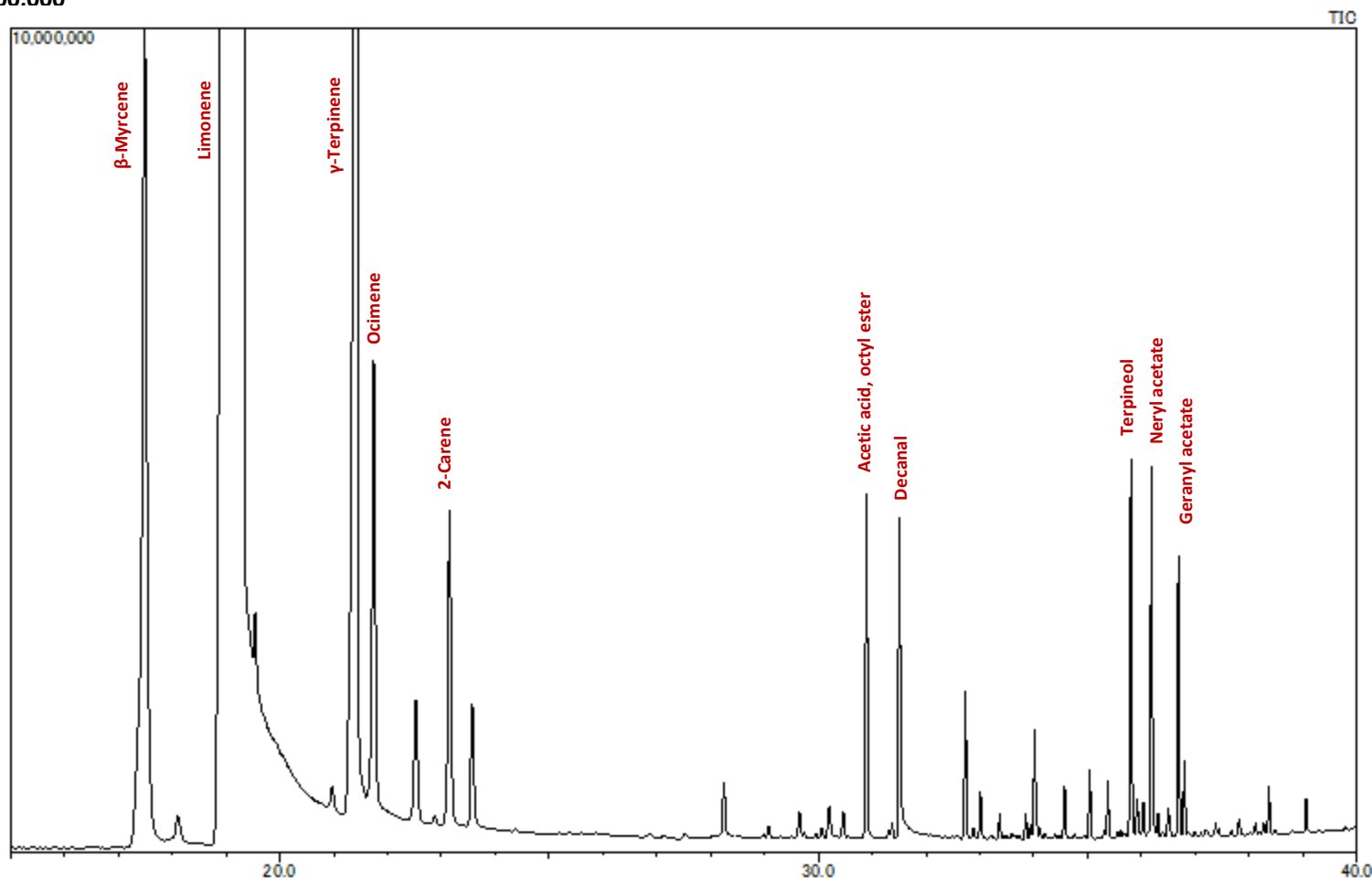
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Enlarged view

Odor Analysis Orange Marmalade Jam

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Ocimene : Fragrance **Decanal** : Citrus Fruits, buckwheat

Terpeneol : Lilac fragrance **Neryl acetate** : Essential oil **Geranyl acetate** : Fruit fragrance

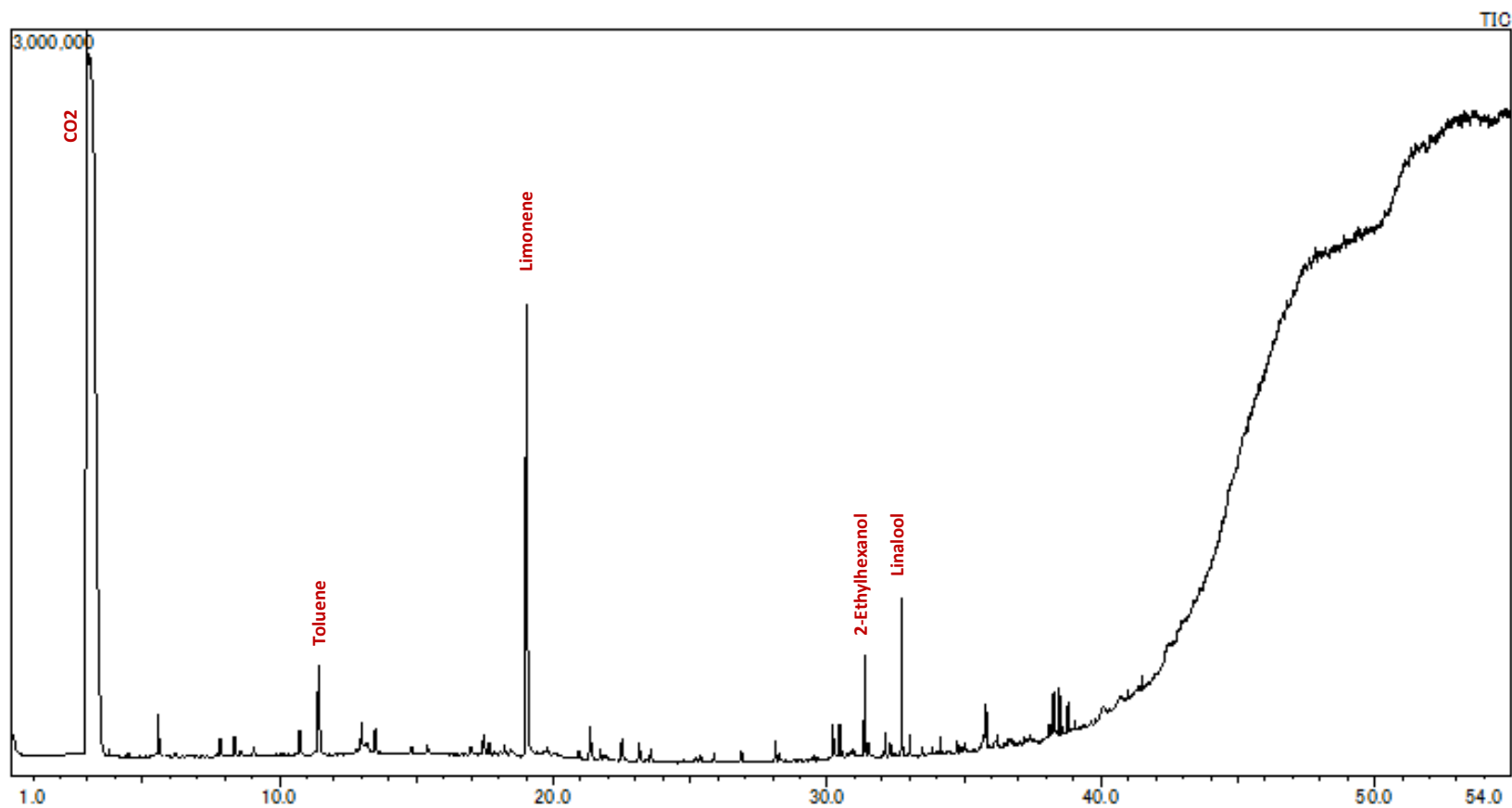


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Odor Analysis Blue Berry Jam

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Limonene : Citrus Fruits Skin

Linalool: Lily, Lavender smell

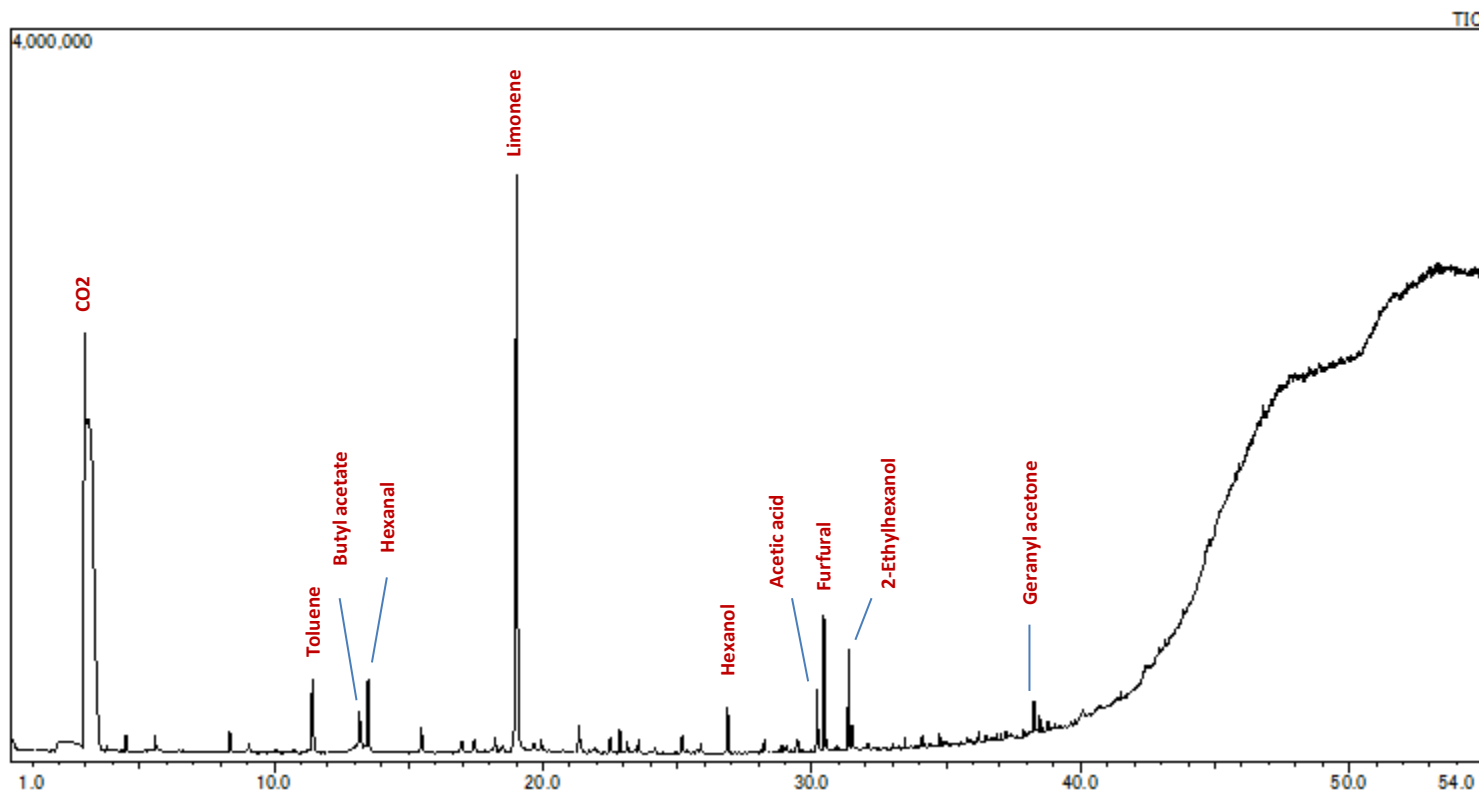


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Odor Analysis Apple Jam

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Now we know Hexanal, Hexanol and Geranyl acetone detected in Mix Jam (Strawberry, Apple, Grape) was from Apple Jam.

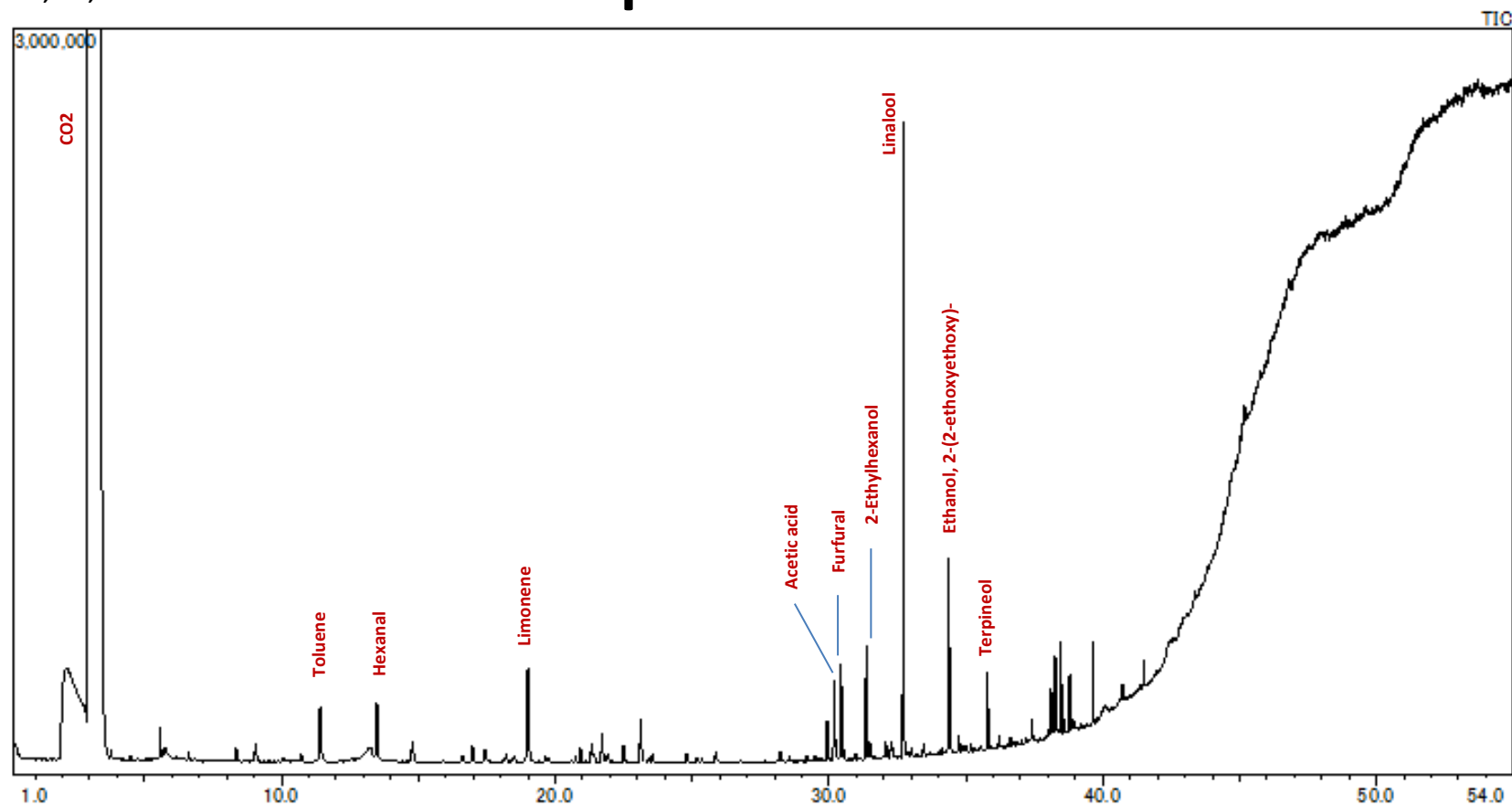


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Odor Analysis Apricot Jam

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Linalool: Lily, Lavender smell

Limonene : Citrus Fruits Skin **Terpeneol**, **Furfural**

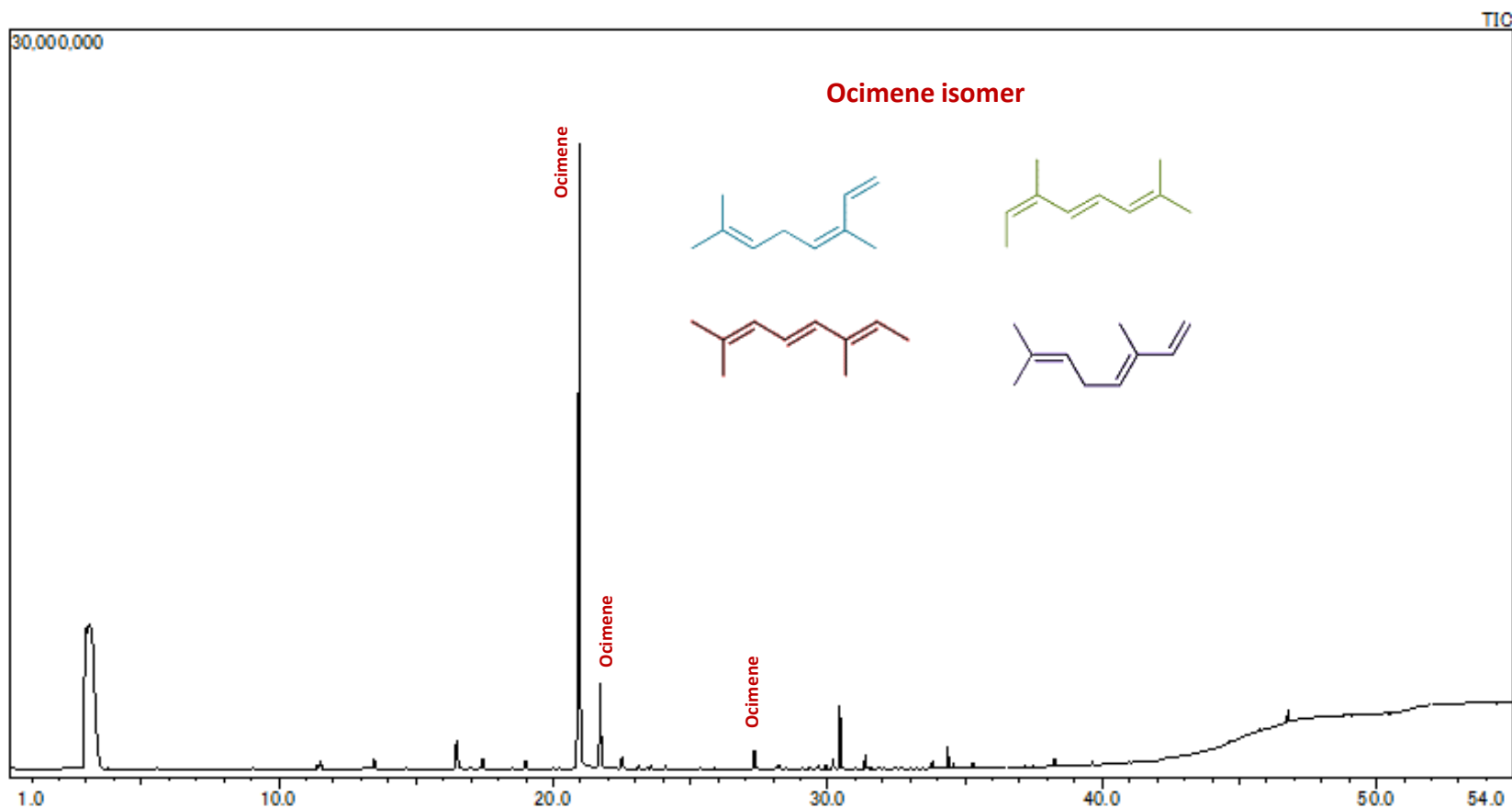


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Odor Analysis Mango Jam

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Ocimene isomer: Fragrance, no color



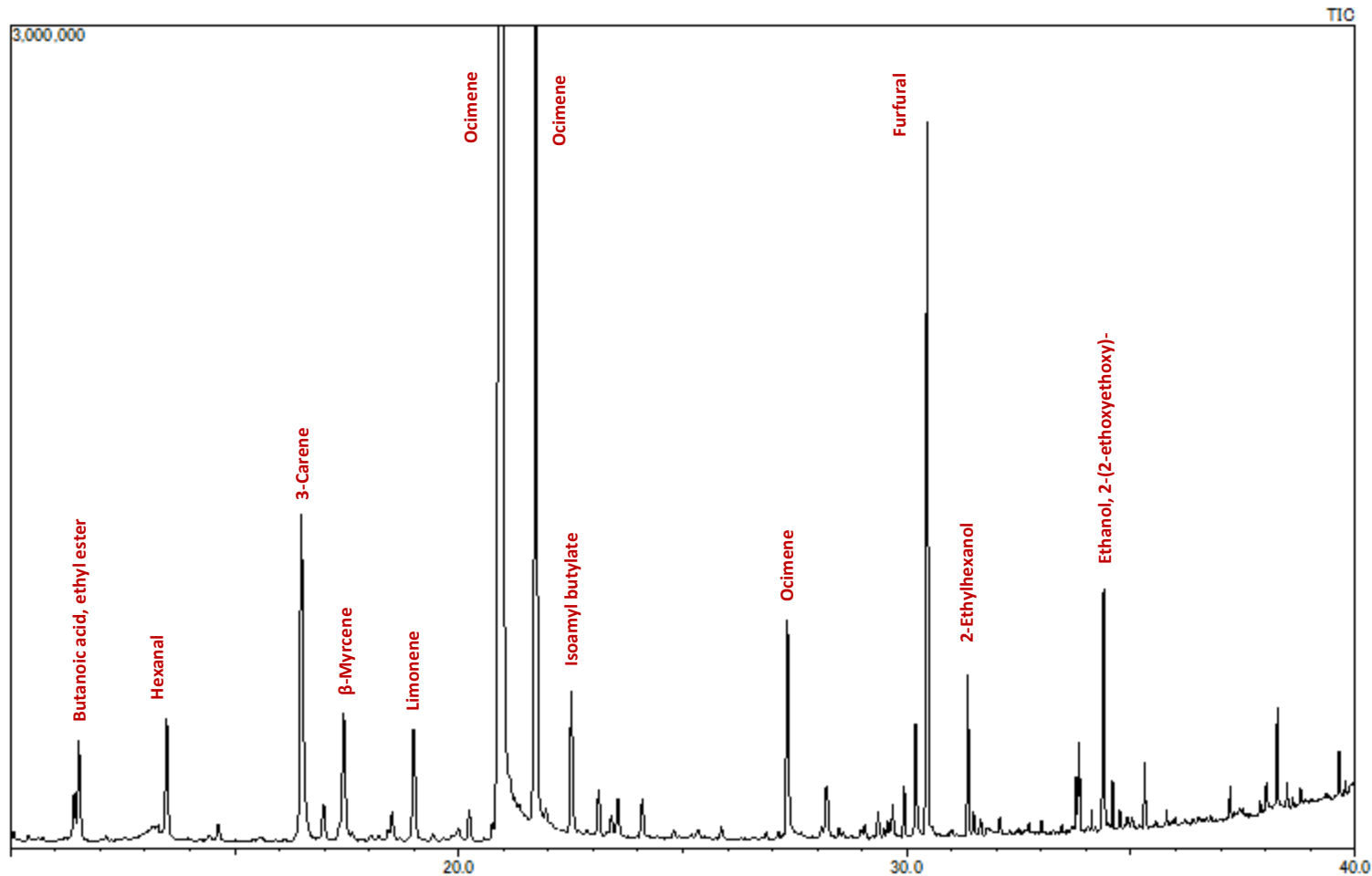
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Enlarged view

Odor Analysis Mango Jam

アバダンス
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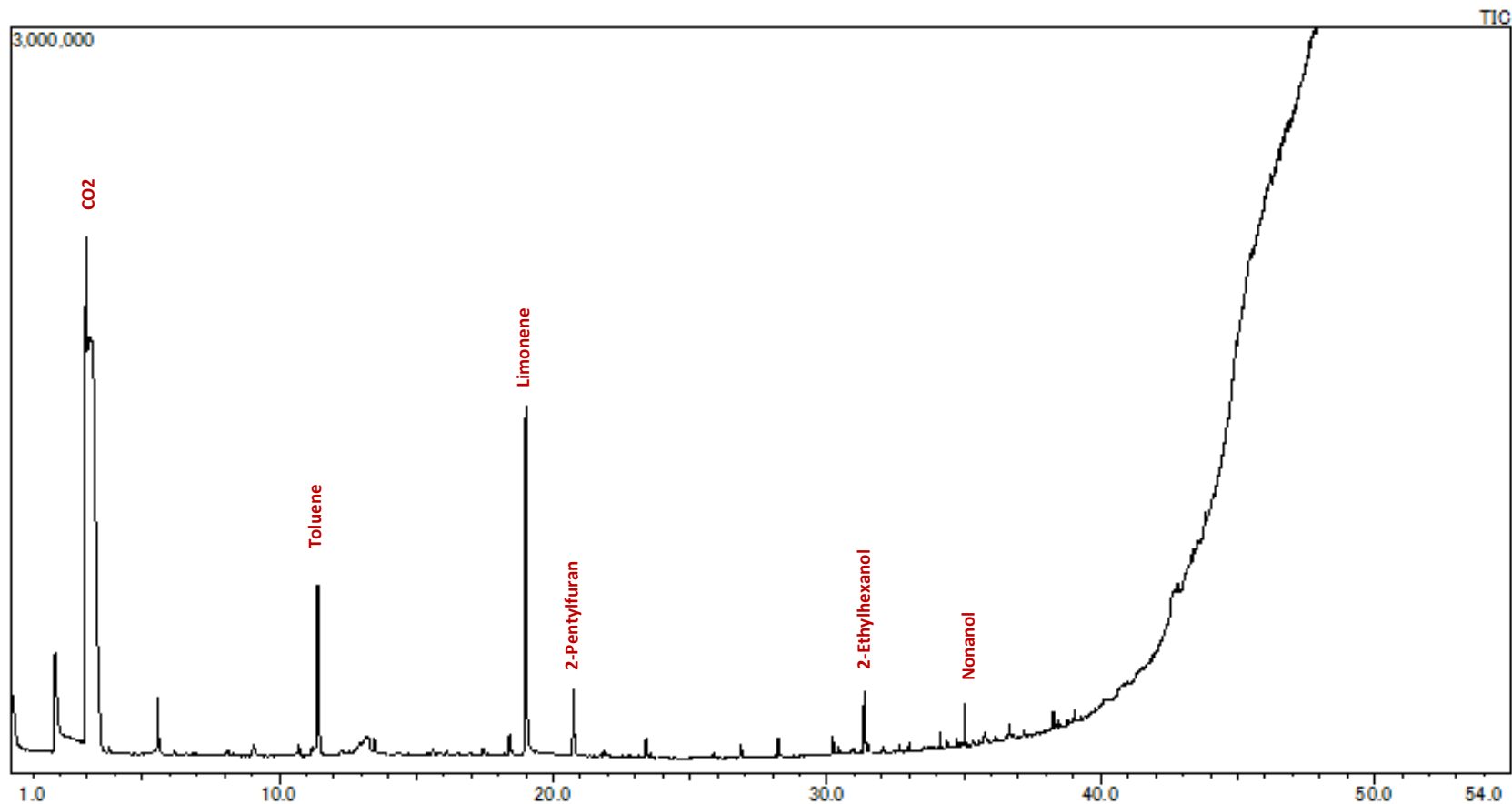


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Odor Analysis Marron Clean

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2-Pentylfuran : Organic synthesized material, fruit fragrance, sweet.



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Summary

Sample	Detected compounds
Mix Jam	Butyrate groups, Acetate groups, aldehyde genera
Strawberry Jam	Acetic acid, octyl ester, Linalool, Nerolidol
Orange Marmalade	Myrcene, Limonene, γ -Terpinene, Ocimene Decanal, Terpeneol, Neryl acetate, Geranyl acetate
Blueberry Jam	Limonene, Linalool
Apple Jam	Ethyl acetate, Limonene, Hexanal, Hexanol, Geranyl acetone
Apricot Jam	Linalool, Limonene, Terpeneol, Furfural
Mango Jan	Ocimene isomer, Isoamyl butylate, Ethyl butyrate, 3-Carene, Myrcene, Limonene, Furfural
Marron Cleam	2-Pentylfuran, Limonene, Nonanol