



Aroma Analysis, Development & Training

Molecular Flavour Pairing of Foods & Drinks

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The Food & Drink Innovation Network
Food & Drink Trends 2015 and beyond
11th November 2015

“Molecular” Gastronomy

Molecular Gastronomy - The Celebs



Hervé This



Tony Conigliaro



Heston Blumenthal



Ferrán Adrià

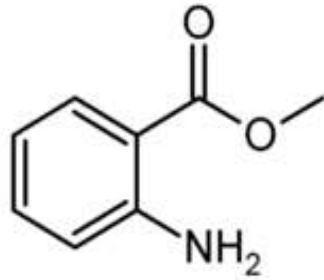


“Molecular Gastronomy Kits”



Is Molecular Gastronomy really Molecular?

Food/Flavour Molecules look like this:

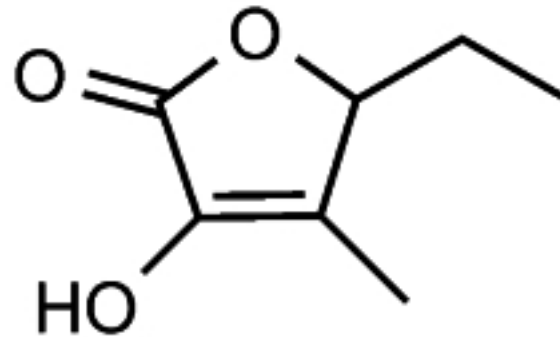


Methyl Anthranilate

In 1g there will be 5000 million, million, million molecules

If you could count 1 per second it would take you about 30 million million years to count them

Can we taste 1 molecule?



Maple Furanone

Odour Threshold 0.00005 ppb
= 0.0000000000005%
= $5e^{-12}$ %

Can we taste 1 molecule in 100g water?

Threshold of 0.00005ppb = 0.00000000000005% =

$5e^{-12}$ %
(not much at all really)

If 1g contains 5000 million million million molecules then 1 molecule in 100g water =

$2e^{-22}$ %
(virtually nothing)

So the answer is.....



Molecular Gastronomy looks like this:



Key Elements: Taste, Surprise and “Magic” (and spheres)



Serving Suggestion

But.....

Fad or Serious?

Health Concerns

- Obesity & Nutrition
- Children's Eating Habits

Obesity & Nutrition



Common Molecules – Bread/Beef

Hexanol

Isovaleraldehyde

Methyl Pyrazine

Ethyl Pyrazine

2,3-Dimethyl Pyrazine

2-Ethyl-3-Methyl Pyrazine

Flavourists can make a chocolate flavour from these components! –
is there a connection?

Children's Eating Habits





Benzaldehyde
trans-2-Hexenal
cis-3-Hexenol
Dimethyl Sulphide
Nonanal



Kiwi and Almond Sauce?

Traditional Food Pairings

Traditional Food Pairings

Cheese & Onion



16 molecules in common

Dimethyl Sulphide, Methanethiol, Ethyl Butyrate

Traditional Food Pairings

Gammon & Pineapple



38 molecules in common

Phenol, gamma-Hexalactone, Hexanal,
Ethyl Acetate

Traditional Food Pairings

Lamb & Mint



8 molecules in common (all acids)

2-Methyl Butyric Acid, Caproic Acid, Capric Acid

Traditional Food Pairings

Gin & Tonic



32 molecules in common

Decanal, Linalyl Acetate, alpha-Terpineol

Traditional Food Pairings

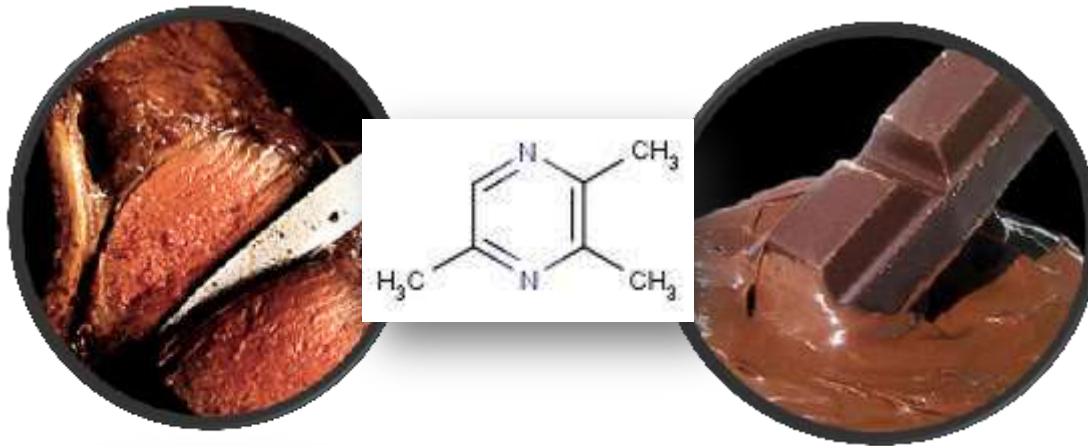
Ferret & Rhubarb



Future Food Pairings

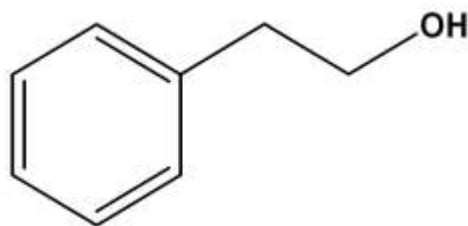
Cyclic & Heterocyclic Compounds

Beef & Chocolate



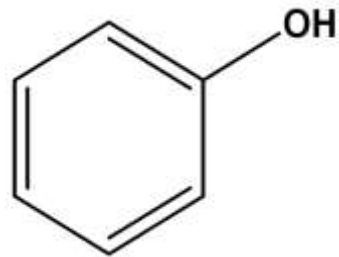
2,3,5-Trimethyl Pyrazine

Tequila & Rose



Phenyl Ethyl Alcohol

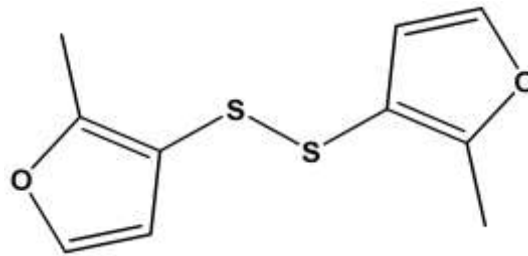
Shrimps & Port Wine



Phenol



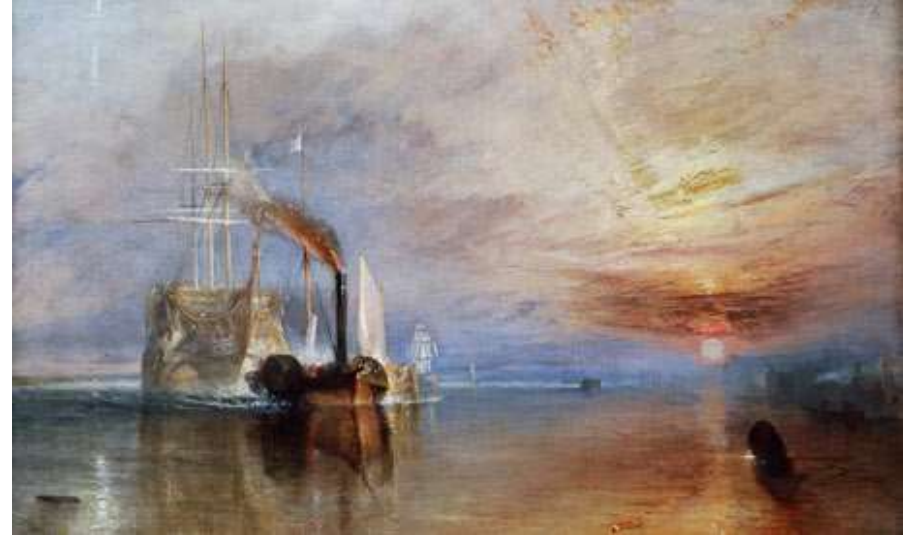
Goat's Cheese & Grapefruit



bis(2-methyl-3-furyl)disulfide

Molecular Foods & Drinks?





Analysis tells us what colours to use
It doesn't give us the final painting



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