2.12 the constituents expressed in percentage terms of a typical sample of United Kingdom honey and an outline of the normal range of variation of its main constituents

Honey Constituents

Honey Constituents

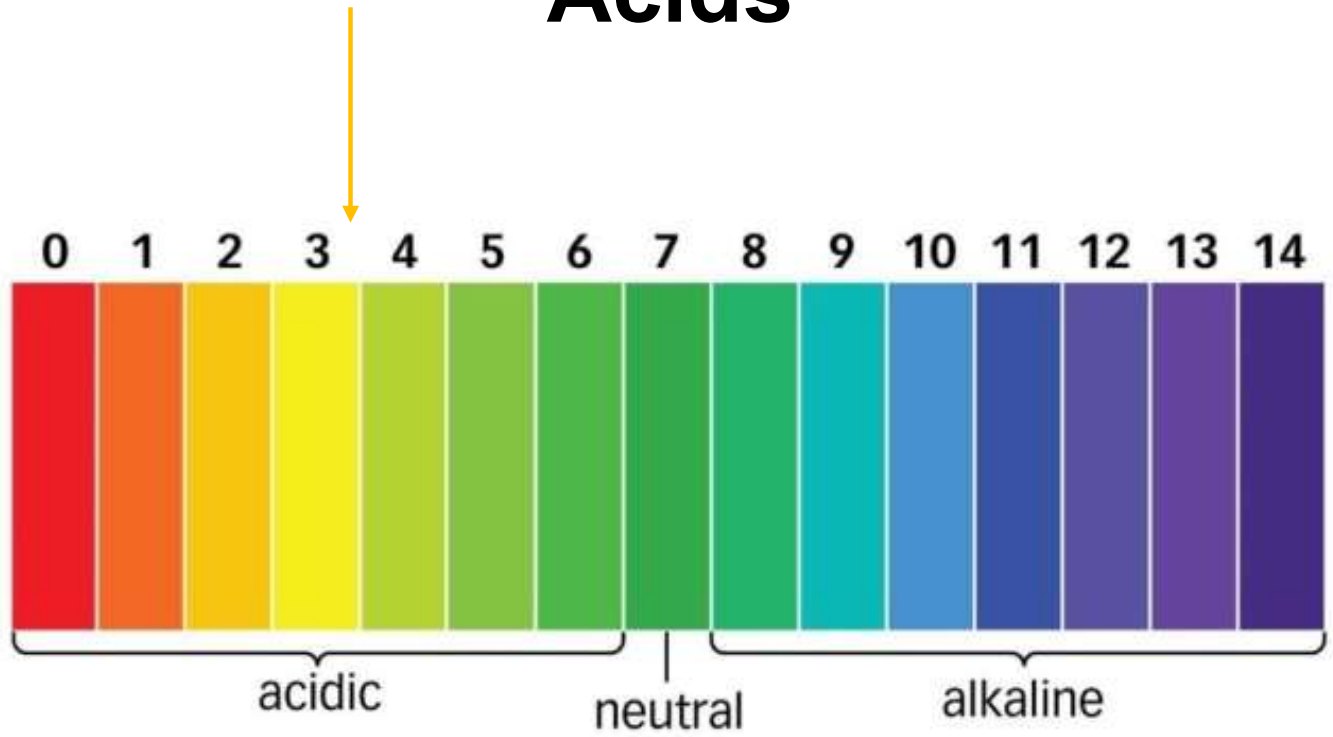
Constituent	Typical Amount	Range
Carbohydrate Or stated as sugars: Fructose Glucose Sucrose Other Sugars	80% 38-40% 31-35% 1-3% 8%	78 - 86%
Water	17.5%	13 - 23%
Acids	0.5%	0.2 – 1%
Nitrogen	0.04%	0 – 0.13%
Ash	0.2%	0.02 – 1.03% (Celia Davis says 0.09 – 0.33%)
Enzymes	Not Stated	
Flavour and aroma constituents	Not Stated	
Breakdown Products	Not Stated	

Carbohydrates (sugars)

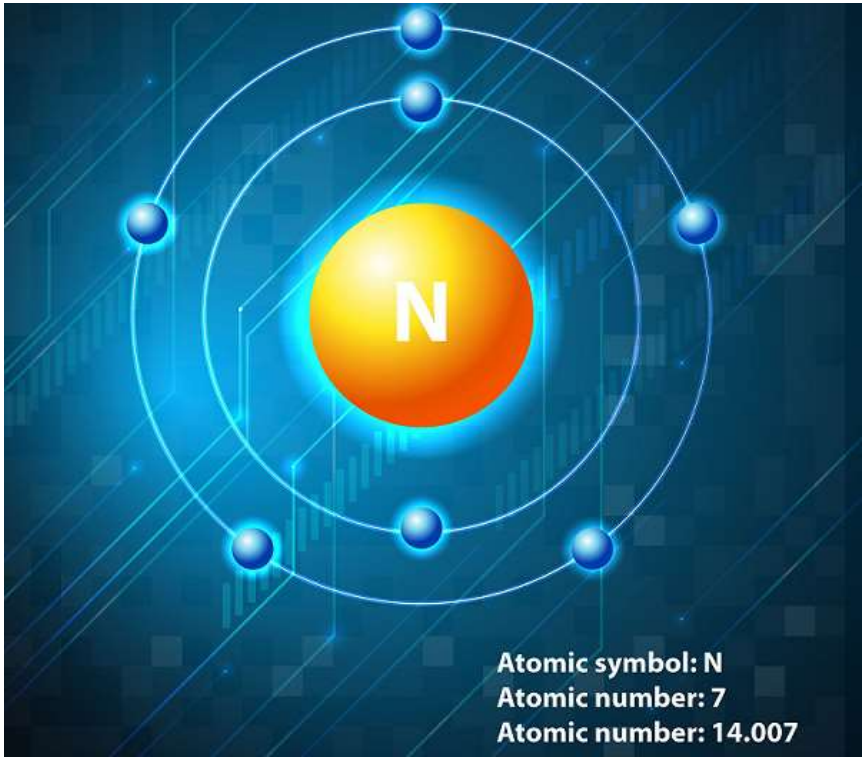
Monosaccharides	Fructose and Glucose, typically in ratio 6:5 except in Rape honey Yates says: Glucose (dextrose) 35% Fructose (levulose) 40%	68 - 72%
Disaccharides	Sucrose 1-3% and Maltose ~7% (Yates says 4%)	8 – 10%
Trisaccharides	15 identified most important Melizitose	1 – 5%
Higher Sugars	A least 2 identified; contain 4 and 5 sugar molecules	< 1%

Water

Acids



Nitrogen

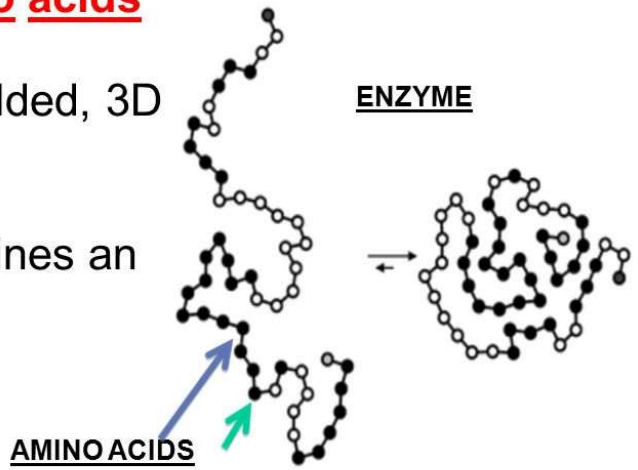


Ash

Enzymes / Proteins / Amino Acids

Enzyme Structure

- Enzymes are proteins, which are chains of **amino acids**
- Enzymes have a folded, 3D shape
- This **shape** determines an enzyme's **function**



Enzymes / Proteins / Amino Acids

Invertase (sucrose)	Used by the bees to break sucrose down into glucose and fructose. Some enzyme activity remains in the honey. The reaction is reversible, i.e. invertase can cause glucose and fructose to recombine into sucrose. This may be the reason why all honeys contain a small amount of sucrose.
Glucose oxidase	Breaks glucose down into gluconic acid and hydrogen peroxide and is one of the major factors responsible for the antibacterial properties of honey.
Diastase (amylase) Average value of 20.8	Breaks starch down to simpler compounds. Its exact function in honey is unknown but bees use the enzyme to break pollen down.

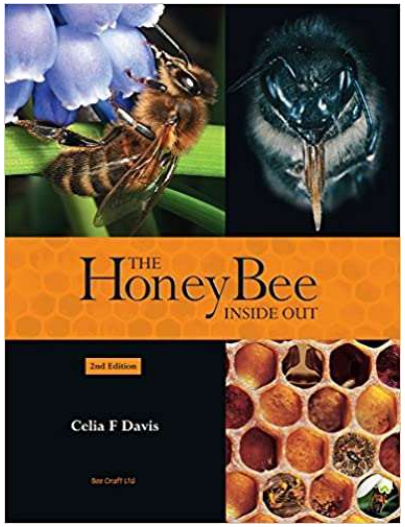
Flavour and aroma constituents

Breakdown products

Vitamins

Colour

References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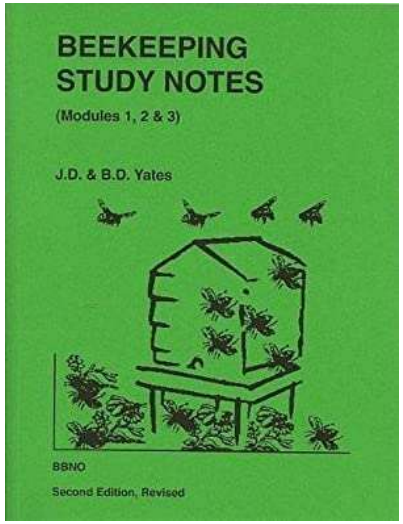
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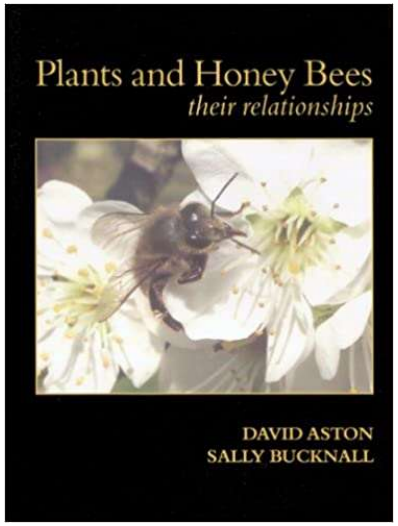
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their relationships
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