Aroma Chemistry -

**** THE AROMA OF COFFEE

COFFEE BEANS & COFFEE BREW



ROASTED COFFEE BEANS CONTAIN OVER

1000 CHEMICAL COMPOUNDS



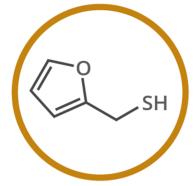
EXTRACTION YIELDS DURING COFFEE BREWING

NON-POLAR COMPOUNDS: 10-25% POLAR COMPOUNDS: 75-100%

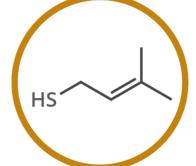
Not all compounds in coffee beans are extracted during brewing. Polar molecules are more soluble in water; they arise when uneven sharing of electrons between atoms leads to the two ends of a molecule having slight electrical charges.



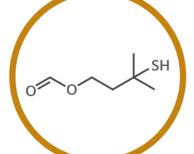
A SELECTION OF AROMA COMPOUNDS IN BREWED COFFEE



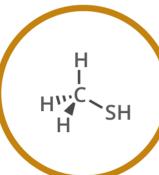
2-FURFURYLTHIOL roasted (coffee)



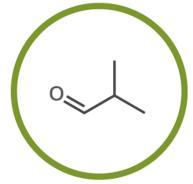
3-METHYL-2-BUTEN-1-THIOL amine-like, sulfurous



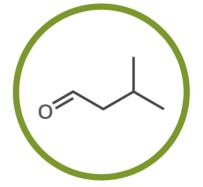
3-MERCAPTO-3-METHYLBUTYLFORMATE catty, roasted



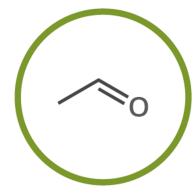
METHANETHIOL rotten cabbage



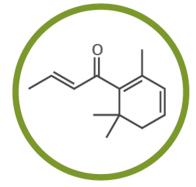
METHYLPROPANAL floral, spicy



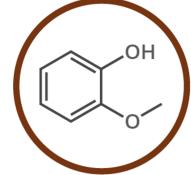
3-METHYLBUTANAL fruity, malty



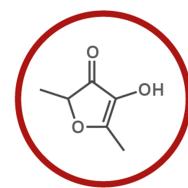
ACETALDEHYDE pungent, fruity



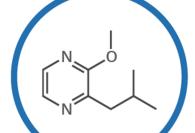
(E)-B-DAMASCENONE honey, fruit-like



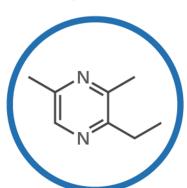
GUAIACOL smoky, spicy



FURANEOL sweet, caramel



2-ISOBUTYL-3-METHOXYPYRAZINE earthy



2-ETHYL-3,5-DIMETHYLPYRAZINE earthy, roasted



Sulfur-containing **Furans**

Aldehydes & ketones





Coffee contains several hundred different chemical compounds, but only a minority of these contribute to the aroma. A compound's contribution to aroma is dependent on both its concentration and the threshold at which its smell can be perceived by humans. There are also variances in chemical composition for different coffee beans, leading to the variety of differing tastes and aromas.





