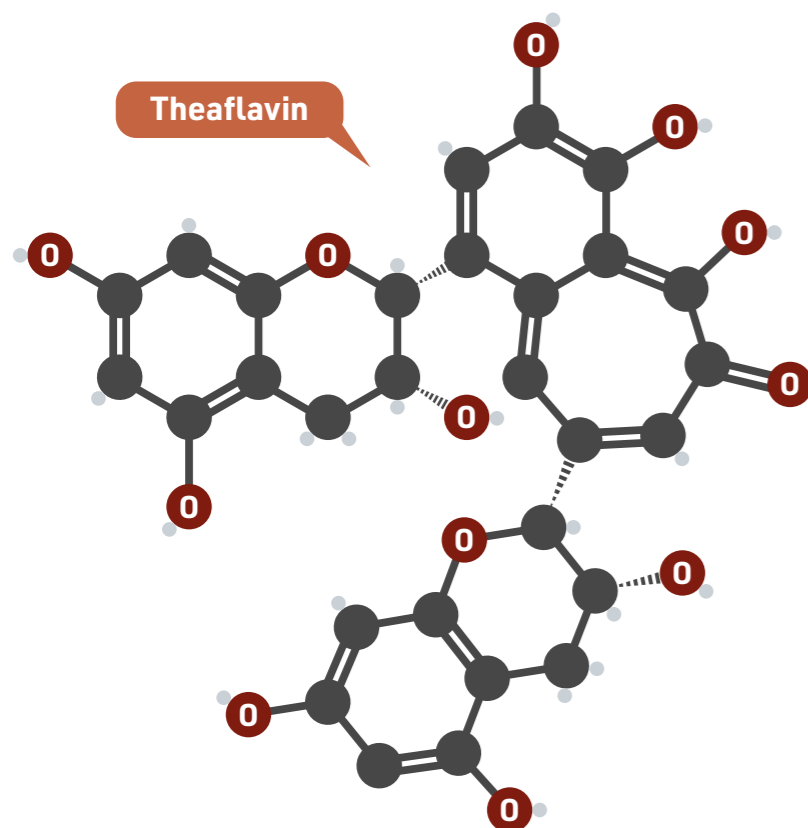


Tea polyphenols, stimulants, and tea scum

Polyphenols and tea's colour

Tea contains a significant quantity of polyphenol compounds: 180–240 mg in a strong cup of tea. Polyphenol compounds called catechins are oxidised during tea leaf processing, producing a complex mix of other polyphenol compounds. These include theaflavins and thearubigins which contribute to tea's red-orange colour and flavour.

KEY: ● Carbon ● Oxygen ● Nitrogen ● Hydrogen



Studies have identified the antioxidant properties of tea polyphenols, but the scientific evidence for health benefits from these is mixed.



What causes tea scum?

Scum forms on the surface of a cup of tea if the water used to make it contains calcium and bicarbonate ions. Higher quantities of these ions are found in hard water. The scum is oxidised tea polyphenol compounds on a film of calcium carbonate.



Calcium ions

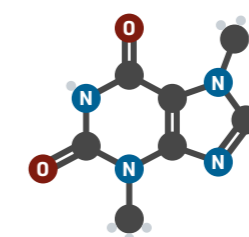
Bicarbonate ions

Calcium carbonate

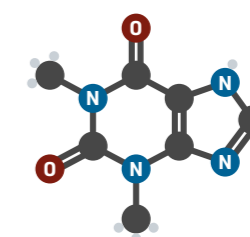
Increasing the acidity of the tea, for example by adding lemon juice or brewing with more tea leaves, reduces the formation of scum by removing bicarbonate ions.

Tea's stimulant effects

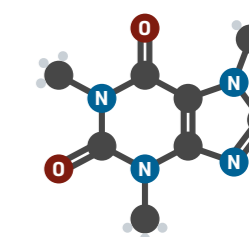
Tea contains the methylxanthines theobromine, theophylline, and caffeine. Caffeine has a well-known stimulant effect. Tea usually contains less caffeine than coffee, though quantities can vary depending on the brewing time and type of tea.



Theobromine



Theophylline



Caffeine



Tea

35 mg

Coffee

80 mg

Approx. caffeine content in 200 ml



Tea also contains L-theanine, an amino acid. Studies have suggested that L-theanine can have a calming effect. This may balance the stimulant effect of caffeine, explaining why the effects of coffee can feel a lot more potent.

L-theanine

