News Release

ROYAL SOCIETY OF CHEMISTRY

How to make a Perfect Cup of Tea

Ingredients: Loose-leaf Assam tea; soft water; fresh, chilled milk; white sugar. Implements: Kettle; ceramic tea-pot; large ceramic mug; fine mesh tea strainer; tea spoon, microwave oven.

Draw fresh, soft water and place in kettle and boil. Boil just the required quantity to avoid wasting time, water and power.

While waiting for the water to boil place a ceramic tea pot containing a quarter of a cup of water in a microwave oven on full power for one minute.

Synchronise your actions so that you have drained the water from the microwaved pot at the same time that the kettle water boils.

Place one rounded teaspoon of tea per cup into the pot.

Take the *pot to the kettle* as it is boiling, pour onto the leaves and stir.

Leave to brew for three minutes.

The ideal receptacle is a ceramic mug or your favourite personal mug.

Pour milk into the cup FIRST, followed by the tea, aiming to achieve a colour that is rich and attractive.

Add sugar to taste.

Drink at between 60-65 degrees Centigrade to avoid vulgar slurping which results from trying to drink tea at too high a temperature.

Personal chemistry: to gain optimum ambience for enjoyment of tea aim to achieve a seated drinking position in a favoured home spot where quietness and calm will elevate the moment to a special dimension. For best results carry a heavy bag of shopping – of walk the dog – in cold, driving rain for at least half an hour beforehand. This will make the tea taste out of this world.

Recommended ideal reading to accompany The Perfect Cup of Tea: *Down and Out in Paris and London* by George Orwell.

Dr Andrew Stapley of Loughborough University writes:

- Use freshly drawn water that has not previously been boiled. Previously boiled water will have lost some of its dissolved oxygen which is important to bring out the tea flavour.

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- Avoid “hard” water as the minerals it contains gives rise to unpleasant tea scum. If you live in hard water area use softened (filtered) water. For the same reason do not use bottled mineral water.
- To achieve perfection, we advocate using a tea-pot with loose tea. The pot should be made of ceramic as metal pots can sometimes taint the flavour of the tea. Tea bags are a handy convenience, but they do slow down infusion, and favour infusion of the slower infusing but less desirable higher molecular weight tannins (see below).
- It is not necessary to use a lot of tea. 2 grammes (a teaspoon) per cup is normally sufficient.
- Tea infusion needs to be performed at as high a temperature as is possible, and this needs a properly pre-warmed pot. Swilling a small amount of hot water in the pot for a couple of seconds is not enough. Fill at least a quarter of the pot with boiling water and keep it there for half a minute. Then, in quick succession, drain the water from the pot, add the tea and then fill with the other boiled water from the kettle.
  A better alternative is to pre-warm the pot using a microwave oven! Add $^1/_4$ cup of water to the pot and microwave on full power for a minute. Then drain, and add tea and boiling water from the kettle. Aim to synchronise events such that the kettle water is added immediately after it has boiled, and just after you have drained the water. Taking “the pot to the kettle” will marginally help keep the temperature high.
- Brew for typically 3 to 4 minutes (depending on the tea). It is a myth that brewing for longer times causes more caffeine to infuse into the tea. Caffeine is a relatively quick infuser and caffeine infusion is largely complete within the first minute. More time is, however, needed for the polyphenolic compounds (tannins) to come out which give the tea is colour and some of its flavour. Infusing for longer times than this, however, introduces high molecular weight tannins which leave a bad aftertaste.
- Use your favourite cup. Never use polystyrene cups, which result in the tea being too hot to drink straightaway (and will also degrade the milk, see below). Large mugs retain their heat much longer than small cups in addition to providing more tea!
- Add fresh chilled milk, not UHT milk which contains denatured proteins and tastes bad. Milk should be added before the tea, because denaturation (degradation) of milk proteins is liable to occur if milk encounters temperatures above 75°C. If milk is poured into hot tea, individual drops separate from the bulk of the milk and come into contact with the high temperatures of the tea for enough time for significant denaturation to occur. This is much less likely to happen if hot water is added to the milk. Once full mixing has occurred the temperature should be below 75°C, unless polystyrene cups were used.
- Lastly add sugar to taste. Both milk and sugar are optional, but they both act to moderate the natural astringency of tea.
- The perfect temperature to drink tea is between 60°C and 65°C, which should be obtained within a minute if the above guide is used. Higher temperatures than this require the drinker to engage in excessive air-cooling of the tea whilst drinking – or “slurping” in everyday parlance. Leaving a teaspoon in the tea for a few seconds is a very effective cooling alternative.

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Notes for Editors

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