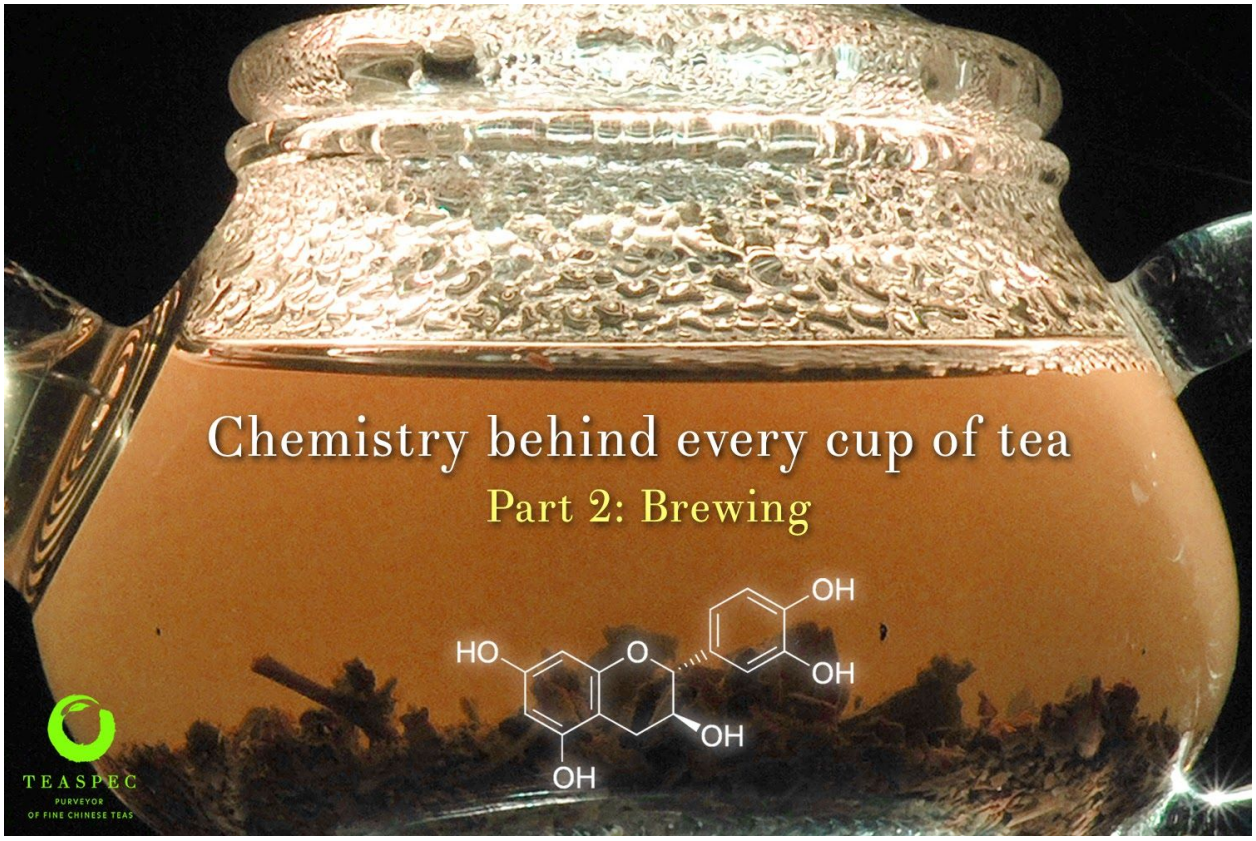



Previously, we discussed about the chemistry of processing tea leaves. The water molecules in tea leaves are completely removed during the last stage of processing. Today, we will be understanding how tea leaves are made active once they are brewed in water.

## Chemistry of brewing tea

As the dry tea leaves are added into water, they absorb water and re-hydrate themselves. This initiates the steeping process where the absorbed water molecules react chemically with the dissolvable compounds of tea. The dissolved solution then move from higher to lower concentration area of water until equilibrium is achieved. This process is called diffusion.

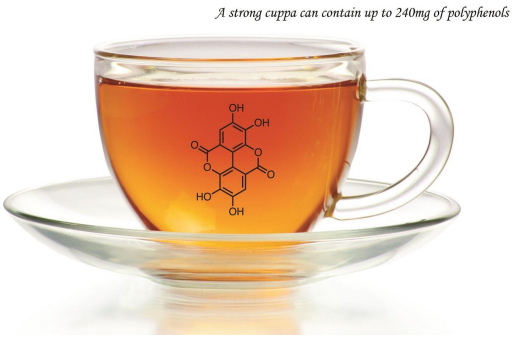
During this whole process, a small amount of elements dissolve into the water converting its taste, color and flavour. The ratio of water and tea ingredients in a cup of tea is nearly 98% to 2%. Isn't it surprising how a mere 2% ingredients is able to turn plain water into a delicious beverage with so many health benefits?

## Heat

Contrary to popular beliefs, hot water does not influence the process of brewing tea. However, heat increases the kinetic energy of water molecules, accelerating the steeping process, which is why tea brewed in hot water generally gets faster and better result.

## Compounds in tea and their health benefits

Tea leaves are power-packed with different compounds, of which, the main compound is polyphenols, holding up to 40% of the weight in dry leaves. Amino acids, enzymes, caffeine, minerals, vitamins and more than 700 aroma compounds in trace amounts make up for the remaining composition found in tea.




Each compound of tea provides a different health benefit. Polyphenols, including flavonoids for example, are naturally occurring plant chemicals found in tea and have strong antioxidant properties. These antioxidants help prevent cell damage, caused by free radicals. As a result, tea aids in fighting against numerous health problems like cardiovascular, cancer, degenerative diseases, premature ageing and many other diseases.

Theanine is one of the amino acids found in tea shown to reduce mental and physical stress. Theanine promotes alpha wave production in the brain, the part of the where it is stimulated during meditation or wakeful relaxation. Theanine also increases brain dopamine levels. Additionally, the combination of L-theanine and caffeine has been shown to promote faster cognitive abilities such as faster reaction time, faster numeric working memory reaction time and improved sentence verification accuracy.

The following vitamins are also naturally found in tea:

- Vitamin C – Recent studies shown that black tea, green tea and oolong tea are all extremely good sources of vitamin C, a potent antioxidant.
- Carotene, a precursor to vitamin A, has antioxidant and protective properties.
- Thiamine (vitamin B1) and pantothenic acid are necessary for the release of energy from fat and carbohydrate.
- Vitamin B6 is involved in metabolism proteins
- Folic Acid plays a role in cell division.

Did you know that on top of all these wonderful benefits tea is also a good source of essential minerals like Manganese, Potassium, and Fluoride? Manganese is essential for bone growth and development; Potassium regulates cellular fluid levels and is vital for maintaining healthy

heart tissues; Fluoride combats tooth decay and gum diseases, and tea is one of the few natural sources of fluoride.