

Effects of Different Steeping Methods

by Peter F. Goggi

Q.

I saw a study recently published in *Journal of Chromatography* (2007 Jul 13: 1156(1-2):312-20) by Yang D.J. et al from Taiwan titled "Effects of different steeping methods and storage on caffeine and gallic acid in bag tea infusions." The scientists measured the content of caffeine, catechins, and gallic acid released in hot and cold tea and what happened when the tea was stored at cold or room temperatures.

It seemed that the highest amount of caffeine, catechins, and gallic acid was obtained at a brewing temperature of 100° C, however the catechins, which are considered the healthy components in tea, decreased appreciably if the tea was stored at room temperature (25°C) for 36 hours. None of the components were lost if stored at refrigerator temperature (4°C).

This leads to the questions:

* How long is a cup of hot tea considered a healthy mouthful? The study didn't show what happens if you leave your cup to cool down and drink it lukewarm (which I usually happen to do) after ~1/2 hour.

* How many antioxidants are actually present in bottled tea—that is not sold refrigerated? According to the study, most should be gone 3 days after preparation.

Hope you can help with further information.

Thanks,

Kirsten Kristensen

A.

Thanks, Kirsten for your inquiry.

Let's take a look at what's happening. Firstly, it is not a surprise that the highest amount of solubles, measured in this case as caffeine, catechins and gallic acid are obtained at 100°C. Some of these molecules are rather large and it takes time to infuse. Boiling water is the most efficient for making tea.

Regarding catechin level reduction, there are a couple of things to note. There are many compounds in tea called flavonoids that provide overall healthful impacts. Catechins are but one segment. The study is correct in noting that catechins lowered after holding at room temperature for 36 hours, something that a consumer would never do. The lowering is not because the catechins are 'disappearing' but because they are reacting with oxygen and each other to form larger molecular weight phenolic compounds which still have antioxidant properties.

In short, if you allow your hot tea to cool and then consume it, virtually none of the antioxidant properties will be lost. Holding tea for 36 hours is never recommended, but as the study points out there is a potential for losing some of the health benefits over time.

Regarding RTD beverages, you see many companies, including mine, claim specific antioxidant levels. Speaking for our Lipton products, we have developed proprietary systems that maintain the anti-oxidant levels for several months, so that you can be assured that you will gain the full effect of the anti-oxidants as claimed on our labels.

I hope this answers your questions and I look forward to receiving others from my readers.

—Ed. To our readers: Peter F. Goggi is the director of tea buying at Lipton and president of Royal Estates Tea, a division of Lipton. If you would like Mr. Goggi to answer any question(s) you may have about tea, please write to:

Peter F. Goggi
TEA A MAGAZINE
P.O. Box 348
Scotland, CT 06264
or email us at:
teamag@teamag.com