Teas, Black, Green and Now White
What are you drinking? According to a increasing number of scientists your daily beverage of choice should be tea. Black and Oolong tea were standbys for hundreds of years. Then came the taste sensations of the Nineties: green tea, Chai and rooibos (a red herbal tea). And now comes a new and expensive variety called “white tea.” I shall try to make some sense out of the burgeoning tea scene.

Tea is prepared in various ways from the dried leaves of the camellia bush (C. sinensis). Black, green and now white...all are healthful for you. A recent article by Dr Jack F. Bukowski in the Proceedings of the National Academy of Sciences (PNAS) showed that tea significantly increased the body’s ability to defend against infections, a growing concern in this age of SARS. That is because tea contains a substance that turns into an immune-stimulating ‘drug’ in the body. Tea fights against invading bacteria, viruses and fungi. Immune system blood cells of tea drinkers respond five times faster to germs than do blood cells of coffee drinkers! Coffee does not have any such effect.

Dr. Bukowski and his team at Harvard Medical School and Brigham and Women’s Hospital in Boston isolated a substance called L-theanine from ordinary black tea. This substance is broken down in the liver to ethylamine, a molecule that primes an immune system element called the gamma-delta T cell. This cell in turn prompts the secretion of interferon, which is one of the body’s hormone-like defenses against infection. These results indicate that five cups of tea a day may sharpen the body’s defenses against disease.

Dr. Penny Kris-Etherton, a nutrition specialist at Pennsylvania State University, agrees. She has said that the latest PNAS finding adds to a growing body of evidence that tea is effective at fighting disease. It is immunotherapy, on just pennies a day.

Tea vs. Colon Cancer?
Studies have also shown that people who drink tea have a lower incidence of many types of cancers than those who drink no tea. (Most such research has been done on green tea, but black tea appears equally effective.) Tea may also be helpful in preventing coronary heart disease. It has been shown both to reduce high blood pressure and to inhibit the formation of blood clots in artery walls. Further benefits of green tea include a steadying of blood sugar levels and an inhibition of the growth of bacteria that can cause gum disease, cavities and bad breath.

For most Americans, tea choices used to be limited to Lipton, Salada and White Rose. The cost was a penny or two a cup. Today, the choices in supermarkets, food co-ops and specialty shops can be bewildering...and so are some of the prices. When I was in Washington DC recently I visited “Teasim,” a chain of New Age tea houses that are devoted to the “belief that selecting, serving, and selling tea is art and love, not just commerce.” I wonder what old Sir Thomas J. Lipton would have made of that!

For various reasons, I generally drink my tea decaffeinated. But one has to be sure that the tea is decaffeinated by natural means (water or carbon dioxide) rather than with harmful chemicals. If you find yourself without access to decaf (decaffeinated tea is almost unknown throughout Europe, for example) you can effect a do-it-yourself decaffeination by dunking a regular teabag in a small amount of water for half a minute and then discarding this first liquid. The next dunking of the bag will yield tea that has significantly less caffeine. (Thanks to an alert reader for this tip.)

And What’s With White?
“White tea” is not tea with milk added. It refers to a form of tea in which the leaves and buds are steamed and dried. It is thus the least processed form of tea since all other teas undergo both withering and oxidation. White tea contains more buds, which are covered with silvery hairs that give it a whitish color. It brews to a pale yellow or light red color, and has a slightly sweet flavor. The biggest problem with white tea is its price: In the interest of scientific research, I recently purchased some at my local food co-op, which generally has reasonable prices on exotic food items. Yet, even there, the price was over $46 per pound. This could be a budget buster. I bought a dollar’s worth. It made one pot of tea. It was delicious: mild, like green tea, but without green tea’s somewhat hay-like aroma. The caffeine sneaks up on you and can pack a wallop.

Below is a picture of the white tea I purchased:
fifteen minutes in order to release their full flavor. So, if the current economic downturn has not caused you to start “Quick-en-ing” in the middle of the night, you might spring for some white tea. If you are watching your money, don’t despair: you can still get an enormous amount of health benefit out of a simple cup of black tea from the supermarket.

Is White Tea Better for You than Green or Black Tea?

In a recent experiment, tea was found to fight against the development of colon cancer, at least in animals. White tea was compared to green tea for its ability to suppress precancerous formations (known as aberrant crypts) in the colon of mice. Both white and green tea were compared to sulindac, a non-steroidal anti-inflammatory drug (NSAID) known to cut back on precancerous tissue changes in the colon of mice.

After 12 weeks, mice given green tea, white tea, or sulindac had significantly fewer such precancerous lesions than controls. The protection provided by either green or white tea was in fact comparable to the proven ability of sulindac in this regard. But mice treated with a combination of white tea plus sulindac had significantly fewer tumors than they did when treated with either substance alone. “This research provides evidence that teas, particularly when administered in combination with sulindac, are highly effective at inhibiting intestinal neoplasia (tumors) in mice,” researchers at the Linus Pauling Institute in Oregon concluded.

The same researchers tested four types of tea for their ability to protect the rat colon from a known dietary carcinogen (or cancer-causing substance). Researchers brewed the white tea for five minutes, using two grams of tea to every 100 milliliters of water, which works out to about two-thirds of an ounce of dry tea to a quart of liquid. A second group of rats was given an equivalent amount of just caffeine. In weeks three and four of the experiment, the animals were given a carcinogen derived from cooked meat.

An examination of liver enzymes and metabolites in urine at eight weeks suggested that the “carcinogen was more rapidly metabolized and detoxified” by the rats given white tea than those getting caffeine alone or water. At the end of the study, rats given white tea also had significantly fewer pre-cancerous lesions in their colon. Interestingly, rats given caffeine alone also had fewer such lesions than the controls.

The researchers cautioned that “these data are highly preliminary, and cannot be extrapolated to human cancer prevention or treatment, since animal data is only suggestive of what might happen to humans.” They do indicate, however, that white tea, like other forms of tea, can block experimentally induced DNA damage. The animal studies also raise the possibility that any potential extra benefit from white tea (compared to other teas) might simply be related to its higher caffeine levels.

Pesticide Problems in Teas

Tea crops are sometimes heavily sprayed, and one should rightly be concerned about the danger of chemical residues. This is particularly true for teas originating, in whole or in part, from China and India. The situation is improving but still warrants caution. Starting in 2001, European Union (EU) regulations reduced pesticide tolerances for tea by 100 times. This has been great for European consumers. Because spraying is so common in China, it effectively excluded half of China’s tea exports to the EU and caused more than $125 million in losses to farmers in Zhejiang Province. (In 2001, Chinese pesticide production rose by 9 percent to 696,400 tons, more than three times their 1995 total. When will they get the message?)

Indian teas will also have to meet new health standards being set by the European Union or lose their considerable share of the European market. Starting in July, 2003, the EU plans to ban the use of 320 types of pesticides and fertilizers, many of which are used by Indian tea growers. Indian suppliers will then have to ensure that their consignments comply with these stricter pesticide limits. Even the permissible pesticides cannot go above the level of 3 milligrams per kilogram of tea. India currently produces about 20% of the tea on the world market. But Sri Lanka and Kenya, with their organic varieties, have both justifiably made a dent in the Chinese and Indian tea markets.

Kenyan tea is generally less contaminated than Chinese or Indian brands. At the Unilever (i.e., Lipton) website they state that natural biological methods of controlling pests and diseases are employed in their Kenyan plantations and that “no pesticides are used on mature plants except for one herbicide on field edges.” Such teas, while not strictly organic, are much less worrisome than Chinese or Indian teas and a lot less expensive than specialty organic brands. However, to my knowledge, Lipton does not yet sell a 100% Kenyan tea in the United States.

One very flavorful brand of Kenyan black tea that I often drink is from the famous Irish tea distributor, Bewley’s, which is also available in a decaffeinated form. Their Clipper Gold Tea comes from tea gardens high in the mountains of Kenya and is considered to be among the best of the Kenyan varieties. Even decaffeinated, it is delicious and strong: one teabag will make six to eight cups. Another excellent company is Tazo, two of whose teas won high marks in a recent (March, 2003) Consumer Reports taste test of green teas.

Here are some other brands that offer organic teas, some of them decaffeinated:

Choice Organic Teas (offers a decaf Earl Grey and green tea)
Gepa’s Earl Grey
Great Eastern Sun’s
Island Rose
Simpson & Vail
The Original Ceylon Tea Company
Tedde’s Tea

However you brew it, you should consider making tea your basic beverage of choice. Coffee offers little in the way of health benefits (and may in fact be harmful to some people). But the wonders of tea never cease. It is a simple, inexpensive and healthful habit, “that Excellent and by All Physicians approved China drink,” as an English author of 1658 put it. In sophisticated ways, modern science is now confirming the insights of our tea-imbibing ancestors.

References
See also: http://lpi.oregonstate.edu/new/white.html
Pesticide residues: http://www.organicconsumers.org/toxic/chinapesticides012103.cfm
http://www.unilever.com/environmentalsociety/casestudies/agriculture/Case_study_tea.asp

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