

## Mate Tea Lowers Cholesterol



*Cup and straw with dry mate tea leaves -- a traditional drink from Argentina. (Credit: iStockphoto/Natallia Yaumenenka)*

ScienceDaily (Oct. 26, 2007) — When a study in her lab showed that mate tea drinkers had experienced a significant increase in the activity of an enzyme that promotes HDL (good) cholesterol while lowering LDL (bad) cholesterol, University of Illinois scientist Elvira de Mejia headed for Argentina where mate tea has been grown and taken medicinally for centuries.

She returned with a five-year agreement with La Universidad Nacional de Misiones to cooperate in the study of 84 genotypes of mate tea, both cultivated and wild, never-before-studied, varieties.

"Our studies show that some of the most important antioxidant enzymes in the body are induced by this herbal tea," said de Mejia of her study in September's *Planta Medica*.

"Because Argentina has the different mate varieties, we'll be able to do more comparisons and characterizations between the different genotypes and the benefits of different growing conditions--whether in sun (on a plantation) or in shade (under the rainforest canopy)," she added.

Not only does de Mejia hope to identify the most nutritionally beneficial genotypes of the herbal tea, she hopes that Argentine experience with drying and processing mate will lead to improved extraction of the tea's bioactive compounds. "Food companies are very

interested in adding tea extracts to juices, soda, and even beer to increase the nutritional value of their products," she said.

In the cholesterol study, blood levels of the cardio-protective enzyme paraoxonase-1 were measured before and after healthy volunteers consumed either 0.5 liters of mate tea, milk, or coffee. Activity of the enzyme increased an average of 10 percent for mate tea drinkers compared to the other drinks.

"The tea used in the study was prepared at the same concentration used in South America, although they usually drink 2 to 3 liters per day," said de Mejia.

In South America, mate is usually drunk from a dried gourd and consumed through a metal straw. About 50 grams of dry leaves are packed into the gourd and hot water is poured over them; this is repeated many times, with as much as ½ to 1 liter of water. This method of consumption allows tea drinkers to slowly extract the antioxidants and polyphenols before they can be oxidized.

"To duplicate these results with mate teabags, you would need to use four or five teabags instead of one. It's a strong taste, but many people say that coffee has a strong, bitter taste. This is more of a grassy herbal taste. It may be an acquired taste, but I seem to have acquired it," said graduate student Caleb Heck who accompanied de Mejia to Argentina.

Heck characterized the tea consumed in the cholesterol study in de Mejia's U of I labs and is now working with the tea brought back from Argentina. He said that mate is high in xanthines (mainly caffeine), and he has found 12 polyphenolic compounds at different concentrations, depending on where the tea was grown. Polyphenols are thought to have a protective effect against cancer and cardiovascular disease.

He is quickly becoming something of an authority on the subject, and he and de Mejia have written a comprehensive review of mate tea, including its chemistry, health implications, and the technological considerations involved in its processing, that has been published in November's *Journal of Food Science*. The study was funded by the University of Illinois Research Board.

Heck and de Mejia of the U of I and Teresita Menini and Alejandro Gugliucci of Touro University co-authored the study of the effect of mate tea on HDL cholesterol, which appears in the September issue of *Planta Medica*. The study was funded by the University of Illinois Research Board and Touro University.

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