



# HerbClip™

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**FILE: ■ Chamomile (*Matricaria recutita*)**

■ Herbal Teas

■ Pharmacokinetics

**HC 030251-277**

**Date: March 31, 2005**

**RE: Study Measures Chamomile Tea's Metabolites in Urine**

Wang Y, Tang H, Nocholson JK, Hylands PJ, Sampson J, Holmes E. A metabonomic strategy for the detection of the metabolic effects of chamomile (*Matricaria recutita* L.) ingestion. *J Agric Food Chem* 2005;53:191–196.

Diet and nutritional supplements may exert subtle yet important effects on metabolism. Detecting these biochemical effects can challenge the limits of technology. Mass spectroscopy and liquid chromatography are commonly used to study urinary metabolites; however, the large amount of structurally similar chemicals can produce ambiguous results. The current study sought to test a novel method for detecting urinary metabolites by combining mass spectroscopy with "chemometric methods" (data filtering techniques that remove variation in the results). According to the authors, the chemometric methods they used "has been successfully applied to aid the diagnosis of coronary heart disease, to remove variation due to instrument and physiological variations, and to facilitate detection of strain-related differences in mouse urine by removal of variation due to diurnal cycle."

Fourteen "healthy" volunteers (7 men and 7 women) were recruited to participate in this 6-week study. For the first 2 weeks, urine samples were collected, which acted as the control samples, followed by 2 weeks of drinking 200 mL chamomile flower tea (*Matricaria recutita*) each day at 10:00 a.m. Urine was collected daily between 11:30 and 11:50 a.m. The tea was prepared by steeping 5 g of chamomile flower powder in 200 mL of boiling water for 10 minutes. The infusion was then strained to make a highly concentrated tea, which corresponded to approximately 5 cups of commercially available tea. The treatment period was followed by a 2-week post-dosing period when urine sample were collected but chamomile tea was not consumed.

Compared to control samples, drinking chamomile tea resulted in an increase in urinary excretion of hippurate, glycine, and "an unknown metabolite." Urinary creatinine decreased compared to control. The changes in urinary metabolites were maintained during the 2-week post-treatment period.

This study showed that combining laboratory techniques can improve identification of discrete urinary metabolites. While the authors conclude that the "mechanism of changes of creatinine and glycine observed is unclear," it may explain the antioxidant and anxiolytic activities traditionally ascribed to chamomile tea. Creatinine is increased with increased oxidative stress, and glycine acts as an inhibitory neurotransmitter in the central nervous system. Additionally, chamomile has traditionally been used as an antimicrobial herb. Urinary hippurate has been used as a marker for alterations in intestinal bacteria,<sup>1</sup> and an increase in hippurate may indicate alterations in intestinal bacteria by chamomile consumption. Additional research should verify the results in this study, and clinical trials are needed to associate specific metabolites with their therapeutic actions.

—*John Neustadt, ND4*

### **References**

1Bralley J, Lord R. Laboratory Evaluations in Molecular Medicine: Nutrients, Toxicants, and Cell Regulators. Norcross, GA: The Institute for Advances in Molecular Medicine; 2001.

The American Botanical Council has chosen not to reprint the original article.

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