

## Spices Hike Your Antioxidant Protection

Oxidative damage to cells is thought to culminate in the onset of several maladies associated with aging. But foods that score high in antioxidant capacity may protect cells and their components from such damage. While berries, fruits, and vegetables are known to have antioxidant power, many herbs used to flavor our foods are proving to have more, ounce for ounce. But their potency can vary, depending on species and growing conditions.

Now, a variety of fresh culinary and medicinal herbs has been grown under the same environmental conditions, at the same location, and evaluated for antioxidant activity. They've been measured for their ability to disarm oxidizing compounds that our bodies naturally generate as a byproduct of metabolism. Three different types of oregano—Mexican, Italian, and Greek mountain—scored the highest, even higher than vitamin E. Also, they were comparable to the food preservative BHA against fat oxidations. Sweet bay, dill, and winter savory also showed strong antioxidant activity. Medicinal herbs generally scored lower in antioxidant activity, suggesting that their health benefits stem from other types of activity in the body. *Shiow Wang, USDA-ARS Fruit Laboratory, Beltsville, Maryland; phone (301) 504-5776, e-mail wangs@ba.ars.usda.gov.*

## Tracking Toxoplasma in Feed and Food

Although the usual source of human exposure to *Toxoplasma gondii* is pet cats, a new study is looking at other possible sources, including food. Cats are the sole host in which this single-cell parasite completes its sexual phase of development. During brief periods, feces from infected cats contain millions of infectious-stage oocysts. These hardy oocysts may sometimes come in contact with feed on farms, accidentally infecting the animals that consume it.

Collaborators at the Centers for Disease Control and Prevention are joining in a first-ever risk assessment of the likelihood of consumer exposure to the *T. gondii* parasite through ingestion of raw or undercooked meat.

To find out how much *T. gondii* may be in meat, the researchers will select 6,000 meat samples from 28 major U.S. metropolitan areas. They also want to see if the amounts found differ by geographic region.

It is estimated that about 23 percent of the U.S. population is infected by *T. gondii*. Estimates of annual health costs from acute toxoplasmosis and its complications range from \$3.3 billion to \$7.8 billion. While healthy people other than pregnant women can weather an infection with few symptoms, *T. gondii* poses a risk to developing fetuses and people with depressed immune systems. *Jitender P. Dubey, USDA-ARS Parasite Biology, Epidemiology, and Systematics Laboratory, Beltsville, Maryland; phone (301) 504-8128, e-mail jdubey@anri.barc.usda.gov.*

## Counting *E. coli* O157:H7 in Water

Although usually spread via contaminated food, *Escherichia coli* O157:H7 bacteria are sometimes waterborne. Now, a faster, easy-to-use test can detect this *E. coli* variant in both natural and constructed bodies of water. It uses magnetic beads coated with anti-*E. coli* monoclonal antibodies that bind to the bacteria and make it possible to count them. While current testing methods detect the bacteria, they do not measure how many are present. But that number is crucial to estimating an individual's level of infection—which tends to vary with health status. In children, especially, this *E. coli* variant can cause diarrhea, hemorrhagic colitis, and hemolytic uremic syndrome. This syndrome can destroy red blood cells, damage the lining of blood vessels, and sometimes cause kidney failure.

If this new test proves to be accurate and selective, it should be possible to detect *E. coli* in a variety of liquids, including swimming pools and other recreational waters. Investigations are under way to ensure that no other bacteria cross-react with the magnetic beads. *Daniel R. Shelton, USDA-ARS Animal Waste Pathogen Laboratory, Beltsville, Maryland; phone (301) 504-6582, e-mail sheltond@ba.ars.usda.gov.*

## Corn Rotations Curb Soybean Cyst Nematodes

If soybean farmers implementing no-till practices rotate corn with their beans, they shouldn't have any more of a problem with soybean cyst nematodes (SCN) than they would using conventional planting methods. This microscopic roundworm, *Heterodera glycines*, causes up to \$1.5 billion in annual crop losses. And there's been speculation, with as many as a third of midwestern farmers adopting no-till, that the shift has led to a rise in SCN populations. No-till involves planting the new crop in the previous season's crop residue without tilling, thus curtailing erosion, replenishing organic matter, and reducing costs.

A 7-year study has shown that SCN populations increased more on a susceptible soybean variety planted no-till than when it was planted conventionally. But rotation with no-till corn, a nonhost, caused a greater reduction in SCN numbers than with conventionally planted corn. For example, after a 1997 no-till planting of corn, the SCN egg count fell from 112,000 eggs per liter of soil to below 12,000. With conventional tillage, the number fell from 48,000 to 8,000 eggs per liter. During the study, yields of an SCN-resistant soybean variety were 15 to 34 percent higher than of a susceptible one, and they also had the lowest SCN numbers. *Gregory R. Noel, USDA-ARS Soybean/Maize Germplasm, Pathology, and Genetics Research Unit, Urbana, Illinois; phone (217) 244-3254, e-mail g-noel@uiuc.edu.*