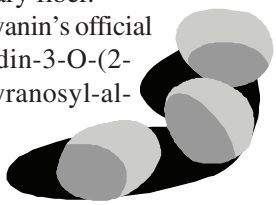
Science Update

Black Lentils Rich in New Nutrient

A lentil named for the Beluga caviar that it visually resembles has been found to contain a previously unknown anthocyanin. Many such color-imparting compounds naturally found in fruits and vegetables are thought to be health-promoting. Beluga black lentils are less well known in the United States than in Europe and Asia, where they are highly valued for their mild flavor and stores of protein, magnesium, iron, zinc, B vitamins, and dietary fiber.



The new anthocyanin's official name is delphinidin-3-O-(2-O-beta-D-glucopyranosyl-alpha-L-arabinopyranoside). Efforts are under way to evaluate Beluga black lentils and other legumes as potential ingredients in novel, nutritious snack foods. *Gary R. Takeoka, USDA-ARS Processed Foods Research Unit, Albany, California; phone (510) 559-5668, e-mail grt@pw.usda.gov.*

I.D.-ing Insects at Different Life Stages

The search for beneficial insects for use in biological control schemes to curb pest insects is hampered by difficulties in identifying the immature stages. Insect identification guides tend to be based on anatomical characteristics of adult forms.

Now it's been shown that DNA fingerprinting tools can be used to positively match immature predatory insects to their adult forms. The accuracy of this technique has been demonstrated with agriculturally important spider and ground beetle species. Having access to multi-stage insect identification specifics could be invaluable to consultants and extension personnel who advise growers on how to preserve and foster important predatory species. *Matthew Greenstone, USDA-ARS Insect Biocontrol Laboratory, Beltsville, Maryland; phone (301) 504-5689, e-mail greenstm@ba.ars.usda.gov.*

Versatile Soybeans Resist Pests AND Diseases

Two new soybean breeding lines developed with the Tennessee Agricultural Experiment Station in Knoxville offer high seed yield plus unique resistance to both nematodes and diseases. They resist multiple races of soybean cyst nematode, which costs growers more than $1 billion annually.

JTN-5303 is a traditional cross between Caviness and Anand, while JTN-5503 combines the attributes of Fowler and Manokin. Both yield significantly more than Hartwig, Fowler, and Anand and have nematode resistance comparable to Hartwig's. Their nematode resistance was mainly based on marker-assisted selection. The new lines were also selected for resistance to diseases such as sudden death syndrome, stem canker, and frogeye leaf spot, with moderate resistance to charcoal rot. They both belong to Maturity Group V, which makes them well adapted to production in the Mid-South. *Prakash R. Arelli, USDA-ARS Nematology Research Unit, Jackson, Tennessee; phone (731) 425-4741, e-mail parelli@msa-stoneville.ars.usda.gov.*

Nonfishy Sushi!

If you're one of those folks who don't relish a trip to the sushi bar to feast on raw seafood wrapped in rice and seaweed, help is on the way! Appealing alternatives in brightly colored, healthy wrappers made from familiar vegetables and fruits might soon be served at neighborhood sushi restaurants. These "American-style sushi" delicacies—sized, shaped, and sliced like typical sushi but made with innovative ingredients—could also be great for portion control for the weight-conscious.

The innovative new appetizers would include such combinations as curry-seasoned potatoes in a carrot wrap, diced roast pork and rice in a pineapple-apricot-ginger wrap, carrots and asparagus in a broccoli wrap, spicy tuna and rice in a tomato-basil wrap—even a mini-dessert cheesecake in blueberry or strawberry wrap. The wraps themselves are at least 75 percent vegetable or fruit, with other natural ingredients. Food industry experts and sushi chefs are helping experiment with wrap and filling combinations. ARS has a patent pending on the technology used to manufacture these wraps and is collaborating with Origami Foods to introduce this product into the marketplace shortly. *Tara H. McHugh, USDA-ARS Processed Foods Research Unit, Albany, California; phone (510) 559-5864, e-mail thm@pw.usda.gov.*

Seeking a Genetic Key to Better Cotton

Markers are small pieces of DNA that can be used as a diagnostic tool to identify plants that have potential resistance to pests or diseases—or that possess other important traits. Marker DNA pieces vary in length, depending on a plant's genetic makeup, and they differ from crop to crop. Plant breeders use DNA markers to speed development of new varieties with the potential to greatly benefit both producers and consumers.

Researchers have created DNA marker databases and genome maps for several major crop plants but not for cotton. This lack of genetic markers and maps has limited development of DNA-based tools to facilitate selection of cotton plants with desirable traits.

Now steps are being taken to rectify this. A joint effort is under way between publicly funded researchers, private industry, grower-funded Cotton Incorporated, and the Clemson University Genomics Institute. Its objective is to develop a DNA marker database and a map of the cotton genome. *Jodi A. Scheffler and Brian Scheffler, USDA-ARS Jamie Whitten Delta States Research Center, Stoneville, Mississippi; [J. Scheffler] phone (662) 686-5219, e-mail jscheffler@msa-stoneville.ars.usda.gov, [B. Scheffler] phone (662) 686-5454, e-mail bscheffler@msa-stoneville.ars.usda.gov.*