Food Scientists Explore Cranberry’s Antioxidant and Antimicrobial Properties

Given the growing interest in functional foods fortified with healthy ingredients, technical presentations on the cranberry abounded at the 2003 Institute of Food Technologists’ (IFT) Annual Meeting and Food Expo, held in Chicago in July.

Antimicrobial research came from research teams at Louisiana State University and Kansas State University. From the former, R. Beverly et al noted that consumers have developed concerns with the safety of ready-to-eat meat products because *Listeria monocytogenes* (LM) has caused a number of outbreaks and deaths associated with these products. The presenters posited that the phenols in natural compounds such as cranberry could inhibit microbial growth by disputing cell membrane function. They evaluated the time and concentration level of cranberry juice needed to effectively reduce LM counts *in vitro*, and found that cranberry juice was very beneficial. In particular, concentrations of 24 to 27 percent cranberry juice had the most effect. For example, after thirty minutes in 27 percent cranberry juice, the LM counts were reduced to non-detectable levels.

In the latter presentation, S. Kim et al examined seven fruit extracts (blueberry, cranberry, elderberry, concord grape, red raspberry, strawberry and red sour cherry) to determine antimicrobial effect against four foodborne pathogens (*Escherichia coli*, *Salmonella enteritidis*, *Listeria monocytogenes* and *Staphylococcus aureus*). After 24 hours of incubation, cranberry and strawberry extracts showed the highest activity against all test cultures.

On the topic of antioxidants, C.H. Lee et al from the University of Wisconsin at Madison evaluated antioxidant activities of cranberry components in muscle foods. Due to public concern regarding the safety of synthetic antioxidants, they became interested in exploring new antioxidants from natural origin that could be applied to food products. In the study, all cranberry fractions reduced the free radical investigated (1,1-diphenyl-2-picrylhydrazyl-radical, or DPPH) in codfish in a concentration-dependent response. The authors believe that cranberry components may be used as potential natural antioxidants to enhance oxidative stability and shelf life of foods.

These advances in food science research offer real-world promise for patients and clients, as today’s discoveries become tomorrow’s ingredients in prepared food products. Advances in food technology point to future functional foods with enhanced health benefits and perishable foods more resistant to foodborne pathogens.
Culinary Quick Tips

Suggest these delicious options, courtesy of WebMD and Health Magazine:

• Sip a tall cranberry sparkler: Mix two parts cranberry juice and one part club soda (or try orange- and/or lime-flavored seltzer). Serve over ice and garnish with a lime wedge.
• Spoon a little cranberry sauce over lemon, orange or raspberry sorbet.
• Serve a snappy salsa: Start with cranberry sauce, then add chopped jalapeños, diced red onion, lime juice, and seasonings to taste. Serve over fish or turkey.
• Mix a spoonful or two of frozen cranberry juice concentrate with oil and vinegar for a flavorful salad dressing. Serve over greens with dried cranberries and toasted nuts.

Recipe Corner

Patients and clients can revitalize their menus and their bodies by choosing cranberries in their favorite forms, including the sweetened dried cranberries featured in this month’s recipe. Crunchy cranberry granola parfait provides a healthy treat, whether it’s enjoyed for breakfast or dessert. The granola also doubles as an energizing trail mix – perfect for home, or on the go.

Crunchy Cranberry Granola Parfait

24 oz (2 2/3 cups) vanilla yogurt*, fat free
2 cups Cranberry Apple Granola (below)
4 Parfait glasses


Nutritional Analysis Per Serving:
Calories 390 (% Calories from Fat 19%), Protein 14g, Carbohydrate 69g, Fiber 5g, Fat 8g, Sat. Fat 1g, Cholesterol <5mg, Sodium 240mg

*C May use any flavor fat free yogurt.

Cranberry Apple Granola

1-6 oz bag (1 1/3 cups) Cranberries, dried
1 cup Apples, dried and chopped
¼ cup Apple juice, unsweetened
½ teaspoon Maple syrup
1 teaspoon Cinnamon, ground
½ teaspoon Salt
4 cups Old fashioned rolled oats
1 cup Pecans, chopped
½ cup Oat bran
½ cup Wheat germ
½ cup Sunflower seeds

Place cranberries and apples in large bowl; set aside. Bring apple juice, maple syrup, cinnamon and salt to boil. Pour over cranberries and apples; let sit 15 minutes. Preheat oven to 300°F. Stir Oats, pecans, oat bran, wheat germ and sunflower seeds together until blended. Add to cranberry mixture and stir until blended. Spread onto 15⅛x10½x1-inch jellyroll pan. Bake at 300°F for 1 hour, stirring every 10 minutes, or until golden brown. Remove from oven and cool. Store in sealed container or plastic bag. Makes 9 cups granola.

Nutritional Analysis Per ½ cup Serving: Calories 250 (% Calories from Fat 30%), Protein 6g, Carbohydrate 41g, Fiber 5g, Fat 8g, Cholesterol 0mg, Sodium 130mg