THE CRANBERRY INSTITUTE

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CRANBERRY HEALTH NEWS

a publication of the Cranberry Institute

Meet Nathalie Tufenkji, McGill University

As Associate Professor in the Department of Chemical Engineering at McGill University and Canada Research Chair in Biocolloids and Surfaces, Nathalie has focused her research on how cranberries affect infectious bacteria, particularly in the case of urinary tract infections (UTIs). Her team was the first to reveal the multi-pronged action of cranberry on infectious bacteria and their host cells.

Their research showed that cranberry reduces the frequency of bacterial infections in the urinary tract by altering the virulence and action of the infection-inducing culprits. Dr. Tufenkji and her team have helped identify what could be the key mechanism behind the power of cranberries in preventing UTIs.

Dr. Tufenkji and her team have since expanded their research, understanding the potential for this discovery to reduce the risk of other ailments, such as gastroenteritis and chronic wound infections. They have also begun to tackle the issue of infections contracted in the hospital; the contamination of medical devices, including urinary catheters, is a significant public health problem. Based on their research, Tufenkji's team developed a cranberry-modified silicone that impairs bacterial spreading, offering the potential to develop implantable medical devices (such as urinary catheters) that are less prone to contamination.

Dr. Tufenkj earned her M.Sc. and Ph.D. in Chemical and Environmental Engineering from Yale University, where she worked on particle and pathogen transport in groundwater environments. She received the American Water Works Association Academic Achievement Award for best doctoral dissertation in the field (2006), a Fulbright Scholar Award for tenure at Harvard University (2012), and very recently, she was awarded the YWCA Woman of Distinction Award in Science and Technology (2014).

Dr. Tufenkji enjoys cranberries in her homemade muffins and as a healthy snack mixed with nuts.

Recent cranberry publications:

Inhibition of bacterial motility and spreading via release of cranberry derived materials from silicone substrates

Inhibition of Escherichia coli CFT073 fliC Expression and Motility by Cranberry Materials

Perturbation of host cell cytoskeleton by cranberry proanthocyanidins and their effect on enteric infections

The swarming motility of Pseudomonas aeruginosa is blocked by cranberry proanthocyanidins and other tannin-containing materials

Cranberry impairs selected behaviors essential for virulence in Proteus mirabilis HI4320

Cranberry Institute Update

The Cranberry Institute is in the process of developing a freeze-dried whole cranberry powder and matched placebo to be used in human health research. This will help provide a more complete understanding of cranberry benefits for human health through: expanded research opportunities with a pure and authentic whole cranberry product; better reporting of the composition of the cranberry product used; and improved ability to compare results among different studies.

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Information on accessing the research powder and placebo will be made available as early as summer 2015.

Cranberries May Provide Protection Against Peanut Allergies!

A study in the *Journal of Agricultural* and *Food Chemistry* reported a surprising discovery when researchers found that cranberry polyphenols could bind to the peanut proteins that contribute to allergies thereby reducing an allergic reaction. Polyphenols have an attraction to bind to peanut proteins. While more research is required, this particular study showed that polyphenol-rich plant juices and extracts, such as cranberry juice, reduced the binding of one or more of the peanut allergens to immune cells – a process that may reduce the symptoms of an allergic reaction. The peanut protein compounds combined with cranberry polyphenols triggered significantly less allergic activity than standard peanut flour. These findings suggest potential uses of the polyphenol-fortified peanut flour as a safer ingredient for oral immunotherapy, although more research is warranted.

Reference: Plundrich NJ, Kulis M, White BL, Grace MH, Guo R, Burks AW, Davis JP, Lila MA. Novel strategy to create hypoallergenic peanut protein-polyphenol edible matrices for oral immunotherapy. J Agric Food Chem. 2014 Jul 23;62(29):7010-21. doi: 10.1021/jf405773b. Epub 2014 May 2.

Cranberries Show Promise in Helping to Treat Inflammatory Bowel Disease

A study in *Food Chemistry* identified cranberries as a potential food for preventing and reducing the symptoms of inflammatory bowel disease (IBD), a condition with limited treatment options. The prevalence of IBD and the risk for the development of colorectal cancer make its treatment and prevention important.

Researchers tested the effects of cranberry products, including cranberry extract and dried cranberries, on preventing colitis (a form of IBD) in mice. The results of the study suggest that groups fed cranberry extract and dried cranberries both had significantly reduced disease activity. Researchers also found dried cranberries were more effective in preventing colitis than cranberry extract. These findings suggest cranberries may have a role in the prevention and treatment of IBD, although more research is warranted.

Reference: Xiao X, Kim J, Sun Q, Kim D, Park CS, Lu TS, Park Y. Preventive effects of cranberry products on experimental colitis induced by dextran sulphate sodium in mice. Food Chem. 2015 Jan 15;167:438-46. doi: 10.1016/j.foodchem.2014.07.006. Epub 2014 Jul 9.

Cranberry Research Resources

- **Comprehensive Review of the Health Benefits of Cranberries in *Advances in Nutrition* Available for Continuing Education Credits through *Today's Dietitian*!**
  - **"Cranberries and Their Bioactive Constituents in Human Health," published in the November issue of *Advances in Nutrition*, provides in-depth information about the bioactive compounds in cranberry and the pathways by which they may help protect against urinary tract infection, cardiovascular disease and diabetes. The Cranberry Institute and *Today's Dietitian* partnered to create a continuing education course for registered dietitians with permission from *Advances in Nutrition*. Registered dietitians will receive four credits after studying the review and completing a multiple-choice exam.**
  - **Click here to read the article: http://advances.nutrition.org/content/4/6.toc**
  - **Click here to read for continuing education: http://ce.todaysdietitian.com/CranInst**
- **Cranberry Health Research Library Updated September 2014**
  - **Twenty-three new abstracts have been added to the Cranberry Health Research Library. Browse the selections by year to find the most recent publications. Click here: http://cranberryinstitute.org/doclib/doclib_search.cgi**
- **Cranberries and School Lunch Toolkit and Foodservice Recipes!**
  - **Thanks to the work of the Cranberry Marketing Committee USA (CMC), dried cranberries have been added to the USDA Foods Available List beginning in early 2014. Check out the school foodservice toolkit and recipes or share with your local schools!**
  - **School Lunch Toolkit and School Foodservice Recipes can be found on the CMC**

website: http://uscranberries.com/Images/News/544/AW0722141355.pdf

Cooking with Cranberries

Cranberry Turkey Picadillo

Makes 8 servings
Portion: Approximately ½ cup
Prep Time: 15 minutes
Cook Time: 15-20 minutes

Ingredients
1 Tbsp. olive oil
1 cup diced sweet onions
1 cup diced green bell pepper
2 tsp. minced garlic
2 lb. ground turkey
1 tsp. ground cumin
½ tsp. ground cinnamon
½ tsp. ground black pepper
⅛ tsp. red pepper flakes
⅛ tsp. ground cloves
½ tsp. salt
1 cup canned diced Roma tomatoes
1 ½ cup dried cranberries

Optional Accompaniments:
4 cups cooked brown rice
or
8 whole wheat tortillas, 8-inch
½ cup reduced-fat sour cream
½ cup shredded cheddar cheese

Directions:

1. **In a large skillet, heat the olive oil over medium heat; add the onions, bell peppers and garlic and sauté. Stir often, until the onions soften, about 3 minutes.**

2. **Add ground turkey and cook until meat is browned.**

3. **Stir in cumin, cinnamon, ground black pepper, red pepper flakes, cloves and salt and cook several minutes.**

4. **Mix in tomatoes with juices and cranberries; reduce heat to medium-low. Continue cooking for 15 minutes, stirring occasionally, until cranberries are soft and mixture has thickened.**

5. **To Serve: For each serving, ladle ½ cup Picadillo over ½ cup rice, if desired. Or place ½ cup Picadillo in a whole wheat tortilla along with 1 Tbsp. sour cream and 1 Tbsp. shredded cheese before wrapping to serve.**

This recipe is courtesy of the Cranberry Marketing Committee, USA. For more great recipes, visit www.uscranberries.com.