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Cranberry Fruit and Leaf Polyphenols Inhibit Staphylococcus Bacterial Biofilms

Catherine C. Neto  
*University of Massachusetts - Dartmouth*

Jason MacLean  
*University of Massachusetts Dartmouth*

Biqin Song  
*University of Massachusetts Dartmouth*

*See next page for additional authors*

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Presenter Information
Catherine C. Neto, Jason MacLean, Biqin Song, Anthony Dovell, Steven Kwasny, and Timothy Opperman

Comments
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Cranberry fruit and leaf polyphenols inhibit Staphylococcus bacterial biofilms

Catherine Neto¹, Jason MacLean¹, Biqin Song¹, Anthony Dovell¹, Steven Kwasny², Timothy Opperman²

¹UMass Cranberry Health Research Center and Department of Chemistry and Biochemistry, UMass-Dartmouth, North Dartmouth, MA
²Microbiotix, Inc., Worcester, MA 01605

Contact: Catherine Neto (cneto@umassd.edu)

Cranberry (Vaccinium macrocarpon) is known for urinary tract health benefits associated with reducing the adhesion of E. coli bacteria. This property has been linked to cranberry polyphenols known as proanthocyanidins. Staphylococcus bacteria are a growing public health concern due to development of resistant strains. Identification of agents that inhibit biofilm formation by these bacteria may provide a new route to reduce infection in clinical settings. Fruit and leaves of North American cranberry (Vaccinium macrocarpon) and cranberry juice were fractionated and screened for their ability to prevent biofilm formation by several strains of S. aureus and S. epidermidis bacteria. MALDI-TOF MS analysis of the most bioactive fractions identified the major constituents as proanthocyanidin oligomers (PACs) with A-type linkages, ranging in size from 2-12 degrees of polymerization. Further characterization by NMR is underway. The polyphenol-rich fractions from cranberry leaf, fruit and juice inhibited biofilm formation by strains of S. aureus and S. epidermidis, with MBIC as low as 3.1 μg/mL, and without significant bacteriocidal activity. Thus, compounds from cranberry fruit, plant material and juice may be useful in reducing Staphylococcus biofilms without promoting resistance.