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[Canadian Journal of Microbiology](#)

Volume 59, Issue 6, June 2013, Pages 430-436

Cranberry impairs selected behaviors essential for virulence in *Proteus mirabilis* HI4320 (Article)

[McCall, J.](#), [Hidalgo, G.](#), [Asadishad, B.](#), [Tufenkji, N.](#)  

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Abstract

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Proteus mirabilis is an etiological agent of complicated **urinary tract** infections. North American **cranberries** (*Vaccinium macrocarpon*) have long been considered to have protective properties against **urinary tract** infections. This work reports the effects of **cranberry** powder (CP) on the motility of *P. mirabilis* HI4320 and its expression of *flaA*, *flhD*, and *ureD*. Our results show that swimming and swarming motilities and swarmer-cell differentiation were inhibited by CP. Additionally, transcription of the flagellin gene *flaA* and of *flhD*, the first gene of the flagellar master operon *flhDC*, decreased during exposure of *P. mirabilis* to various concentrations of CP. Moreover, using *ureD-gfp*, a fusion of the urease accessory gene *ureD* with *gfp*, we show that CP inhibits urease expression. Because we demonstrate that CP does not inhibit the growth of *P. mirabilis*, the observed effects are not attributable to toxicity. Taken together, our results demonstrate that CP hinders motility of *P. mirabilis* and reduces the expression of important virulence factors.

Cited by 3 documents

[Encrustations of the urinary catheter and prevention strategies: A literature review](#)

[Marcone Marchitti, C.](#), [Boarin, M.](#), [Villa, G.](#)
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[Evaluating the binding of selected biomolecules to cranberry derived proanthocyanidins using the quartz crystal microbalance](#)

[Weckman, N.E.](#), [Olsson, A.L.J.](#), [Tufenkji, N.](#)
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[Chan, M.](#), [Hidalgo, G.](#), [Asadishad, B.](#)
(2013) *Colloids and Surfaces B: Biointerfaces*

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EMTREE medical terms: article; bacterial growth; bacterial membrane; bacterial virulence; cell differentiation; cell motility; **cranberry**; gene expression; in vitro study; nonhuman; operon; priority journal; protein expression; Proteus mirabilis

MeSH: Bacterial Load; Bacterial Proteins; Culture Media; Flagellin; Gene Expression Regulation, Bacterial; Movement; Operon; Powders; Proteus mirabilis; Urease; Vaccinium macrocarpon; Virulence; Virulence Factors
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Regional Index: North America

Species Index: Proteus mirabilis; Vaccinium macrocarpon

Chemicals and CAS Registry Numbers: flagellin, 12777-81-0; urease, 9002-13-5; Bacterial Proteins; Culture Media; Flagellin, 12777-81-0; Powders; Urease, 3.5.1.5; Virulence Factors

ISSN: 00084166 CODEN: CJMIA Source Type: Journal Original language: English
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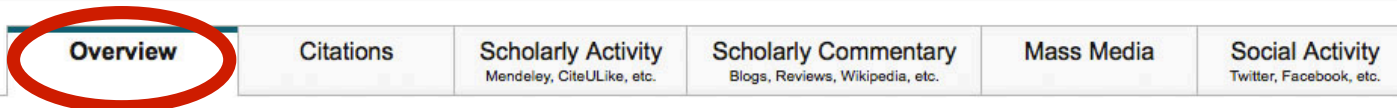


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Suzanne Kettley | 18 July 2013
 Confirmed: cranberries do help prevent urinary tract infections! A recent paper on the topic is now freely available in the Canadian Journal of Microbiology.
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Canadian Journal of Microbiology | 06 June 2013
 Canadian Journal of Microbiology, Volume 0, Issue 0, Page 1-7, e-First articles.