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| Name of Herb:                        | Cranberry  |
| Scientific Names:                    | <i>Vaccinium macrocarpon</i> <sup>1,2</sup> , <i>Oxycoccus macrocarpos</i> <sup>1</sup> , <i>Vaccinium oxycoccos</i> <sup>1,2</sup> , <i>Oxycoccus hagerupii</i> <sup>1</sup> , <i>Oxycoccus microcarpus</i> <sup>1</sup> , <i>Oxycoccus palustris</i> <sup>1</sup> , <i>Oxycoccus quadripetalus</i> <sup>1</sup> , <i>Vaccinium hagerupii</i> <sup>1</sup> , <i>Vaccinium palustre</i> <sup>1</sup> , <i>Vaccinium erythrocarpum</i> <sup>2</sup>   |
| Common Names <sup>1</sup> :          | American Cranberry, Arandano Americano, Arandano Trepador, Cranberries, European Cranberry, Grosse Moosbeere, Kranbeere, Large Cranberry, Mossberry, Ronce d’Amerique, Small Cranberry, Trailing Swamp Cranberry, Tsuru-kokemomo   |
| Other common names <sup>2</sup> :    | Bog cranberry, isokarpalo, marsh apple, mountain cranberry, pikkukarpalo   |
| Active Ingredients <sup>1,2</sup> :  | Proanthocyanidin (AKA condensed tannins), anthocyanin, fructose  |
| Mechanism of Action <sup>1-3</sup> : | Interference with the ability of the bacteria to adhere to the epithelial cells of the urinary tract is thought to be the main mechanism of action of cranberry. This mechanism lends to the prevention of urinary tract infections. There is also evidence that cranberry may increase plasma antioxidant capacity and may have anticarcinogenic activity.  |
| Current Indications and Efficacy:    | <p><b>Prevention of Urinary Tract Infections:</b></p> <p>When taken orally, cranberry is likely to be effective in the prevention of urinary tract infections.<sup>1,2,4,5</sup> In an open, randomized controlled trial, 150 women (mean age of 30 years old) with a urinary tract infection caused by <i>E. coli</i> were randomly allocated to receive either 50mL of cranberry-lingonberry juice concentrate (7.5 g cranberry concentrate/ 1.7g lingonberry concentrate/ 50mL water) daily for 6 months, 100mL of lactobacillus drink (4X10<sup>10</sup> cfu of <i>Lacobacillus</i> GG/100mL) five days a week for a year, or nothing (open control group).<sup>6</sup> In this study, there was a 20% reduction in absolute risk of recurrence of a urinary tract infection in the cranberry group when compared to the control group (P=0.023).<sup>6</sup> In a randomized, double-blind, placebo-controlled trial involving 153 elderly women (mean age 78.5 years), subjects were randomly assigned to receive 300mL per day of Ocean Spray<sup>®</sup> cranberry beverage or a specially prepared synthetic placebo drink that was identical to the cranberry beverage in appearance, taste, and vitamin C content, but contained no cranberry content.<sup>7</sup> Bacteriuria was defined as organisms numbering <math>\geq 10^5</math>/mL. <sup>7</sup> In this study, subjects in the cranberry beverage group had odds of bacteriuria with pyuria that were only 42% of the odds of the control group (P=0.004). <sup>7</sup> The odds of the cranberry juice group remaining bacteriuric-pyuric were only 27% of the odds of the control group (P=0.006). <sup>7</sup></p> |

### **Treatment of Urinary Tract Infections:**

Cranberry is *not* useful for treating urinary tract infections.<sup>1,2,4</sup>

### **Indications with limited data:**

It may also be effective in treating kidney stones and at reducing odor of the urine in incontinent patients.<sup>1,2</sup> Other areas of use where there is limited supportive evidence include: periodontal disease<sup>1,2</sup>, cancer<sup>1</sup>, and prevention of blockage of a urinary catheter.<sup>1</sup>

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| Contraindications/<br>Allergies: | Contraindicated in anyone who is experiencing anuria/oliguria, or patients with hypersensitivity to cranberry or any of its parts. <sup>2</sup> Use with caution in patients with diabetes, benign prostatic hypertrophy, or urinary obstruction. <sup>8</sup>   |
| Dosage Forms <sup>2,6,8</sup> :  | capsule, juice (Ocean Spray <sup>®</sup> cranberry juice cocktail), fresh berries, various strengths of powdered concentrate   |
| Recommended<br>Doses/Duration:   | <b>For UTI prevention:</b> 9-15 capsules of 400-500mg each per day <sup>2</sup> or 1-2 cups juice per day <sup>2</sup><br><b>As a urinary deodorizer in incontinent patients:</b> 3-6 oz of juice per day <sup>1</sup><br><b>Fresh or frozen cranberries:</b> 1.5 oz of berry is equal to 3 oz of cranberry juice cocktail. <sup>1</sup> So, 5 oz of berry per day would be necessary for prevention of UTI (equal to 10 oz or 300mL of cranberry juice cocktail).<br><b>Duration:</b> Dependent upon reason for use. For prevention for UTI, duration of therapy is probably lifelong, although appropriate duration of use for other indications is not indicated in references. |
| Drug Interactions:               | Proton Pump Inhibitors: Due to the acidity of cranberry, absorption of dietary vitamin B-12 may be increased in patients taking PPI's. <sup>1,10</sup> No other drug interactions reported.  |
| Drug/Disease<br>Interactions:    | <u>Atrophic Gastritis:</u> Increased absorption of dietary vitamin B-12 <sup>1,10</sup><br><u>Diabetes:</u> Most cranberry juice products are sweetened with sugar; Patients with diabetes should be advised to choose cranberry products sweetened with artificial sweeteners. <sup>1</sup><br><u>Hypochlorhydria:</u> Increased absorption of dietary vitamin B-12 <sup>1,10</sup><br><u>Nephrolithiasis:</u> Possible increased risk of kidney stones due to high oxalate content of cranberry products. Patients with history of kidney stones should avoid excessive consumption (>1 L/day of juice) over a long period of time. <sup>1,11</sup>                              |
| Other Safety Issues:             | Possible interference with urine dipstick tests <sup>7</sup><br>Large doses may cause GI upset and diarrhea (3-4 L of juice/day). <sup>1</sup>   |

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Reviewed 5/12/03 Susan Paulsen Pharm D

If there is an active urinary tract infection (frequency, hesitancy, pain, or burning), the patient should be referred to a physician because antibiotic treatment may be necessary.<sup>2</sup>

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<sup>1</sup> Natural Medicine Comprehensive Database—Professional. Natural Medicine Comprehensive Database Website. Available at: <http://www.naturaldatabase.com/>. Accessed January 29, 2003.

<sup>2</sup> Skidmore-Roth L. Mosby's Handbook of Herbs and Natural Supplements. St. Louis (MO): Mosby's Inc; 2001:272-274.

<sup>3</sup> Pedersen CB, Kyle J, Jenkinson AM, Gardner PT, McPhail DB, Duthie GG. Effects of blueberry and cranberry juice consumption on the plasma antioxidant capacity of healthy female volunteers. *Eur J Clin Nutr* 2000; 54 (5): 405-408.

<sup>4</sup> Jepson RG, Mihaljevic L, Craig J. Cranberries for preventing urinary tract infections. *Cochrane Database Syst. Rev.* (3):CD001321, 2001.

<sup>5</sup> Triezenberg DJ. Can regular intake of either cranberry juice or a drink containing *Lactobacillus* bacteria prevent urinary tract infection (UTI) recurrence in women after an initial episode? *J Fam Pract* 2001 October; 50 (10): 841.

<sup>6</sup> Kontiokari T, Sundqvist K, Nuutinen M, Pokka T, Koskela M, Uhari M. Randomised trial of cranberry-ligonberry juice and *Lactobacillus* GG drink for the prevention of urinary tract infections in women. *BMJ* 2001 June 30; 322: 1571-73.

<sup>7</sup> Avorn J, Monane M, Gurwitz JH, Glyn RJ, Choodnovsky I, Kipsitz LA. Reduction of Bacteriuria and Pyuria After Ingestion of Cranberry Juice. *JAMA* 1994 March 9; 271 (10): 751-754.

<sup>8</sup> Abt L & Hammerly M (Eds): *AltMedDex® System. MICROMEDEX*, Greenwood Village, Colorado (Edition expires [3/2003]).

<sup>9</sup> Fetrow CW, Avila JR. *The Complete Guide to Herbal Medicines*. Springhouse (PA): Springhouse Corporation; 2000: 170-171.

<sup>10</sup> Saltzman JR, Kemp JA, Golner BB, et al. Effect of hypochlorhydria due to omeprazole treatment or atrophic gastritis on protein-bound vitamin B12 absorption. *J Am Coll Nutr* 1994; 13: 584-91.

<sup>11</sup> Terris MK, Issa MM, Tacker JR. Dietary supplementation with cranberry concentrate tablets may increase the risk of nephrolithiasis. *Urology* 2001; 57:26-29.

