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**FILE: ■ Holy Basil (*Ocimum tenuiflorum*)
■ Health Indications**

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RE: Health Benefits of Holy Basil

Duke JA. Basil as the Holy Hindu Highness. *Altern Complement Ther.* February 2008:5-8.

"Holy Basil is many splendored things," says Jim Duke, PhD, in opening The Garden Pharmacy column in this issue of *Alternative & Complementary Therapies*. He reports on holy basil (*Ocimum tenuiflorum*) or *tulsi*, as it is known in Hindi, and its adaptogenic activity, its stress-relieving effects, and its effects on aging, asthma, and diabetes.

According to Duke, holy basil is a good example of an adaptogen. Adaptogens increase the body's resistance to physical, biological, emotional, and environmental stressors and promote normal physiologic functions.¹ "All plants contain adaptogenic/tonic compounds and can behave in this fashion to some degree, because plants have to contend with stress themselves," says Duke.

Duke cites a study by Gupta et al. that reports three newly identified phytochemical components of holy basil with antistress activity (ocimumosides A and B and ocimarin) and several other bioactive substances, including the cyclo-oxygenase-2 (COX-2) inhibitor apigenin, which shows anxiolytic properties.² Oxidative and inflammatory agents are potent sources of bodily stress. Because a plant produces most of its oxygen in its green tissues, says Duke, it seems only logical that plants need their own antioxidants, especially in their leaves, where oxygen is generated. Sipping *tulsi*-leaf tea, Duke believes he absorbs some evolutionarily familiar antioxidants, borrowing some of the adaptogenic antioxidant tools of the green *tulsi* leaf, and confident that "this versatile plant is an adaptogen with antioxidant, neuroprotective, stress-reducing ... effects."¹ Results of other studies support the antistressor activity of holy basil and suggest that the herb may be a safe, clinically tolerated means of protecting the brain against neurodegenerative diseases.

Regarding its effects on aging, Duke points out that as of November 1, 2007, the PubMed database had more than 75 citations for holy basil in relation to inflammation and anti-inflammatory activity, antioxidant activity and oxidation, and stress-related effects, but only three citations relating to its effects on aging. "Although few phytochemicals in Holy Basil are now dubbed as having effects against aging, the plant contains many pleiotropic phytochemicals, with well over a dozen sharing

more than one activity that might contribute to age-combating effects" (18 phytochemicals are listed in an accompanying table).

Asthma is included in long lists of presumed indications for holy basil, but the evidence for its utility in asthma is weak.³ Duke found no clinical trials of the herb for asthma in humans, but only that the Council of Medical Research of India had suggested its potential in treating human bronchial asthma. However, there was a human study in 1986 (15 subjects) that had promising results.

A better documented clinical indication of holy basil is for blood sugar management in relation to diabetes. Duke cites both animal and human studies showing favorable results.

India's Council of Medical Research reports that the essential oil of holy basil is active against various species of *Bacillus*, *Escherichia*, *Mycobacterium*, *Pseudomonas*, *Salmonella*, and *Staphylococcus*, based on studies not widely available in the United States.

Duke reports that he found an immense range of indications and activities for holy basil derived from folklore; animal, chemical, epidemiologic, or in vitro evidence; and clinical proof, with approval by the German Commission E or approval by TRAMIL. "It looks as if Holy Basil will be an herb of medicinal interest for a long time to come."

—Shari Henson

References

¹[Duke JA cited] Winston D, Maimes S. *Adaptogens—Herbs for Strength, Stamina, and Stress Relief*. Rochester, VT: Healing Arts Press, 2007.

²Gupta P, Yadav DK, Siripurapu KB, et al. Constituents of *Ocimum sanctum* with antistress activity. *J Nat Prod*. 2007;70:1410-1416.

³Prakash P, Gupta N. Therapeutic uses of *Ocimum sanctum* Linn (*Tulsi*) with a note on eugenol and its pharmacological actions: a short review. *Indian J Physiol Pharmacol*. 2005;49:125-131.

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