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**File: ■ Spasmolytic Herbs
■ Gastrointestinal Smooth Muscles**

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RE: Herbal Spasmolytics – Herbs for Smooth Muscle Relaxing Reviewed

Yarnell E, Abascal K. Spasmolytic botanicals: relaxing smooth muscle with herbs. *Altern Complement Ther.* June 2011;17(3):169-174.

Many illnesses involve spasms, cramping, hyperactivity, or constriction of smooth muscles. Conditions which may be alleviated by herbal treatment include esophageal, gastric, intestinal, and colon spasms; gallbladder hyperactivity; spasmodic cough and bronchospasms; uterine cramps; hypertension caused by vasoconstriction; and ureteral spasms.

Carminatives and bitters may be combined to reduce the unpleasant taste and potency of bitters. Bitter candytuft (*Iberis amara*) combines with carminatives angelica (*Angelica archangelica*), chamomile (*Matricaria recutita*), caraway (*Carum carvi*), milk thistle (*Silybum marianum*), peppermint (*Mentha x piperita*), lemon balm (*Melissa officinalis*), celandine (*Chelidonium majus*), and licorice (*Glycyrrhiza glabra*) in one formula, STW-5 (Iberogast®; Steigerwald Arzneimittelwerk GmbH; Darmstadt, Germany). A meta-analysis found STW-5 superior to placebo in functional dyspepsia and, in one clinical trial (CT), superior to cisapride.

Many mints (*Mentha* spp.) are carminatives. Peppermint may be the most common. CTs on oral use of steam-distilled volatile oil of peppermint confirm that it relaxes smooth intestinal muscles, most likely acting as a calcium-channel antagonist. Peppermint oil with steam-distilled volatile oil of caraway was as effective as cisapride in functional dyspepsia in one CT. A meta-analysis of CTs of peppermint oil in irritable bowel syndrome confirmed its efficacy compared to placebo. Carminatives are used with cathartic laxatives for bowel spasms. In one CT, carminatives anise (*Pimpinella anisum*) and fennel (*Foeniculum vulgare*) with the laxative senna (*Senna alexandrina*) and European elder (*Sambucus nigra*) fruit were effective and safe for short-term use in chronic constipation. Bitter orange (*Citrus x aurantium*) and rosemary (*Rosmarinus officinalis*) are also carminatives.

Belladonna (*Atropa belladonna*), a very strong spasmolytic, contains (-)- and (+)-hyoscyamine or atropine. An anticholinergic, it reduces gut secretions and inhibits gastrointestinal (GI) smooth muscle. In CTs, hyoscyamine relieved peptic ulcer pain.

Belladonna overdose, however, can be fatal. The milder anticholinergic silk-tassel bush (*Garrya flavescens*) is spasmolytic in the gut and gallbladder. Gallbladder dysfunction is treated traditionally with fumitory (*Fumaria officinalis*), found beneficial also in the treatment of gastroesophageal reflux disease (GERD). Peppermint oil relieved gallbladder contractions in a small CT. Wild yam (*Dioscorea villosa*) is used clinically as a gallbladder spasmolytic, although no studies confirm this effect.

Non-productive coughs following resolution of other symptoms in pulmonary infections may be relieved with spasmolytic herbs with bronchiolar affinity. The same herbs are used in acute asthmatic bronchospasms. Thyme (*Thymus vulgaris*) is traditionally used in spasmodic coughs. Its extracts and compounds are antispasmodic in tracheal smooth tissue. Both dry and fluid extracts of thyme with cowslip (*Primula veris*) were superior to placebo in double-blind, randomized CTs (RCTs) in reducing coughing in acute bronchitis. Ephedra (*Ephedra sinica*) is a well-known bronchodilator in traditional Chinese medicine (TCM). Traditional relaxing expectorant herbs yerba santa (*Eriodictyon californicum*), hyssop (*Hyssopus officinalis*), black cherry (*Prunus serotina*), and lobelia (*Lobelia inflata*) have not been studied clinically.

Use of herbal spasmolytics for uterine cramping related to normal menstruation (primary dysmenorrhea) can lower use of non-steroidal anti-inflammatory drugs (NSAIDs). Fennel, a GI spasmolytic, also relaxes other muscles. In one CT, steam-distilled oil of fennel was superior to no treatment but somewhat less effective than the NSAID mefenamic acid for cramps on some days of menses but not others. Ginger (*Zingiber officinale*), an antiemetic, is a GI stimulant or carminative depending on dose, patient, and extract. In an RCT, ginger, mefenamic acid, and the NSAID ibuprofen were equally effective against menstrual cramps. Ginger's benefits may be due to its anti-inflammatory action. Traditional treatments cramp bark (*Viburnum opulus*) and black haw (*V. prunifolium*) have not been evaluated clinically.

Chinese salvia (*Salvia miltiorrhiza*), a TCM blood regulator, contains compounds that dilate blood vessels, and has shown benefits in transient ischemic attack or ischemic stroke. Kudzu (*Pueraria montana* var. *lobata*) and Chinese salvia water extracts improved vasodilation and other markers in patients with coronary artery disease significantly more than placebo. Black haw is traditionally used in hypertension but no human research is available on it. Hawthorn (*Crataegus laevigata*) reduced blood pressure in two RCTs, one of them in patients who also had diabetes. Horehound (*Marrubium vulgare*), a traditional expectorant, relaxes blood vessels in vivo.

Acute renal spasms may be alleviated by herbal spasmolytics improving the ability of diuretic herbs to help expel small stones. Khella (*Ammi visnaga*), lobelia, Jamaica dogwood (*Piscidia piscipula*), gelsemium (*Gelsemium sempervirens*), Western pasqueflower (*Anemone occidentalis* syn. *Pulsatilla occidentalis*), or henbane (*Hyoscyamus niger*) may be useful as ureteral spasmolytics.

—Mariann Garner-Wizard

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