

# Herbs for Gastroesophageal Reflux Disease

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## Abstract

Herbal medicines offer many potential ways to help people with gastroesophageal reflux disease (GERD), including by treating the underlying transient lower esophageal sphincter relaxations (TLESR), helping relieve symptoms, and reducing inflammation. *Fumaria officinalis* (fumitory-of-the-wall) and *Cbelidonium majus* (celandine) are two among many cholagogues that empirically seem to be helpful. Another cholagogue, *Artemisia asiatica* (Asian wormwood), has been shown experimentally to reduce GERD-related symptoms.

*Atropa belladonna* (belladonna, deadly nightshade) and other anticholinergics may also correct TLESR. Demulcents, such as alginic acid, *Ceratonia siliqua* (carob), *Ulmus rubra* (slippery elm), *Althaea officinalis* (marshmallow), and *Aloe vera* (aloe) leaf gel can reduce acute symptoms and heal acid-damaged tissues.

Inflammation modulators, such as deglycyrrhizinated licorice, *Calendula officinalis* (calendula), *Curcuma longa* (turmeric), *Zingiber officinale* (ginger), *Rosmarinus officinalis* (rosemary), and *Symphytum officinale* (comfrey) may also help with tissue repair and symptom control. Herbal medicine has much to offer patients with GERD but more clinical research is needed.

## Introduction

Gastroesophageal reflux disease (GERD) encompasses two conditions, nonerosive reflux and erosive esophagitis. Although, historically, erosive esophagitis was considered an inevitable consequence of nonerosive reflux, there is now fairly substantial evidence that the two are distinct conditions and progression from nonerosive reflux to erosive reflux to Barrett's esophagus is uncommon even without treatment.<sup>1</sup> It was also once thought that Barrett's esophagus (or metaplastic transformation of the esophageal lining into a type more similar to gastric epithelium) ultimately transmuted into esophageal cancer. This outcome of GERD in fact seems to be quite rare or represents a completely different disease that just happens to occur simultaneously with GERD.<sup>2</sup>

Because the consequences of GERD are not as dire as once thought, there is simply much less need to suppress gastric acid completely. This, however, is the conventional treatment for GERD, questionable though it is. Presently, proton-pump inhibitors are the third most prescribed drugs in the United States, generating more than \$13 billion in sales each year.<sup>3</sup>

The negative effects of long-term acid suppression as a treatment for GERD include increased risk of pneumonia, osteoporotic bone fracture, micronutrient malabsorption, gastric and small-intestinal bacterial overgrowth, esophageal candidiasis, and food allergy.<sup>4-7</sup> Moreover, it is well-documented that acid-suppressing drugs do not fix the underlying problems in GERD. When these drugs are withdrawn, symptoms almost always return.<sup>8</sup> This is an area where alternative, natural approaches can produce superior results if the focus is on addressing the causes of GERD and managing the symptoms with more benign botanical agents. This article reviews the use of those botanicals.

## Cholagogues

The major pathophysiologic defect underlying GERD is known as transient lower esophageal sphincter relaxations (TLESR).<sup>9</sup> Normally the lower esophageal sphincter (LES) relaxes only during swallowing, but, in GERD, the LES relaxes inappropriately, albeit temporarily, at other times of the day and night. Many factors are believed to contribute to TLESR, including obesity, hiatal hernia, overeating, lying down after eating, wearing tight clothing around the mid-section, and smoking.<sup>4</sup> Increasingly, medications that relax or otherwise affect the LES also play a role, including antihistamines, narcotic analgesics, calcium-channel blockers, and bronchodilators.<sup>10</sup>

Often, patients who make dietary and lifestyle changes, including elimination of likely causative agents, can eliminate GERD symptoms. However, from a practical point of view, many patients will not be able to make or sustain those changes and will continue to experience symptoms. Herbal medicines should then be added to help correct TLESR.



*Calendula officinalis* (calendula).

While treating 2 patients for gallbladder symptoms, one of the authors (Dr. Yarnell) observed that cholagogue botanicals also reduced and seemed to resolve these patients' GERD symptoms.\* Cholagogues are herbs traditionally used to regulate gallbladder tone and activity; most notable for this activity are *Fumaria officinalis* (fumitory-of-the-wall, fumitory) herb and *Chelidonium majus* (celandine) herb.

No clinical work appears to have been published on the use of these herbs for addressing GERD, but, logically, as these herbs relax smooth muscle in the gallbladder, they might well have a similar effect on smooth muscle in the LES. At least one study has shown that the cholagogue herb *Artemisia asiatica* (Asian wormwood), combined with the antiacid drug omeprazole, offset symptoms of reflux esophagitis and prevented its occurrence in rats.<sup>11</sup>

Celandine is a potent herb that should only be used under the care of a practitioner skilled in its use. There are isolated reports of hepatotoxicity associated with celandine use, but this problem has not yet definitively proven to be caused by the herb.<sup>12,13</sup> Because there are so few reports, it is possible that the reported reactions were idiosyncratic (meaning that this effect only occurs in a small fraction of the population who are somehow susceptible and that there is no inherent propensity of the herb to damage the liver). Some preclinical work suggests that celandine can actually be hepatoprotective.<sup>14,15</sup>

## Anticholinergic Herbs

*Atropa belladonna* (belladonna, deadly nightshade) leaf and root contain alkaloids that act as muscarinic receptor antagonists. This anticholinergic herb, and in particular atropine, has been shown to decrease TLESR despite overall relaxation of the LES, with a net reduction in reflux episodes in human trials.<sup>16,17</sup> The action of atropine is apparently in the brainstem as opposed to a local action in the LES.<sup>18</sup>

\*This information was derived from notes used in Dr. Yarnell's medical practice.



*Atropa belladonna* (belladonna, deadly nightshade). Drawing © 2010 by Kathy Abascal, BS, JD, RH (AHG).

Purified atropine tends to cause more adverse effects than the whole herb, and, as a result, only whole-plant extracts are recommended for people with GERD. A typical dose of a 1:5 tincture of belladonna leaf is 8–10 drops with each meal. Mild dry mouth may occur but is not a reason to modify dosing. In contrast, blurred vision or confusion that develops after taking the herb *can be* signs of overdose. If these symptoms occur, the herb should be withdrawn until the symptoms resolve. It can then be readministered at half the prior dose.

## Demulcents

Demulcent herbs and herbal compounds are frequently used to offset symptoms in patients with reflux. These remedies are particularly attractive because of their extremely low toxicity. They are also safe and fairly well-studied, even in infants with reflux. Demulcents are believed to help because they reduce inflammation and form a temporary protective barrier against inflammation.

The algal polysaccharide known as alginic acid, combined with antacids, has been confirmed to relieve reflux symptoms and esophagitis in infants and children. The dose used was 1–2 mL/kg per day.<sup>19</sup>

*Ceratonia siliqua* (carob) pod powder is a flavorful demulcent with a taste reminiscent of chocolate. Its pods grow on a tree in the Fabaceae family. Carob is frequently administered mixed with applesauce. One study found a combination of carob, alginic acid, and antacids helpful and completely safe for relieving GERD symptoms in adults.<sup>20</sup> Carob (350 mg) mixed with cow's milk has repeatedly helped reduce reflux in infants.<sup>21,22</sup> However, in the authors' opinion, cow's milk is not optimal for most infants, and a better practice would be to add carob to other bases such as applesauce, breast milk, or rice gruel.

Other common demulcents used to treat GERD are *Ulmus rubra* (slippery elm) bark, *Althaea officinalis* (marshmallow) leaf and root, and *Aloe vera* (aloe) leaf gel. Slippery elm and marshmallow are generally made into cold infusions, or powder is added to water to make a gruel. The usual adult dose is 5–10 g with each meal. Because of the progressive destruction of slippery elm by Dutch elm disease, marshmallow or aloe gel may be the best choices from an ecologic perspective. The usual dose of aloe gel is 1–3 oz with each meal.

## Inflammation Modulators

Patients with erosive esophagitis also frequently benefit from the addition of herbs that decrease inflammation and promote healing. All the demulcents mentioned above fit this bill, as do a host of other herbs. There is surprisingly little research on these herbs, despite the fact that they are such obvious choices. Only *Glycyrrhiza glabra* (licorice) root has been established to be helpful, in its deglycyrrhizated form.<sup>23</sup> However, *Calendula officinalis* (calendula) flower, *Curcuma longa* (turmeric) rhizome, *Zingiber officinale* (ginger) rhizome, *Rosmarinus officinalis* (rosemary) leaf, *Symphytum officinale* (comfrey) leaf, and many other herbs will probably prove to be equally efficacious.

## Conclusion

A multifaceted herbal approach can help both treat underlying causes of GERD as well as managing symptoms, helping many patients reduce or avoid long-term use of antacid drugs. Choleragogues and anticholinergics may help reduce or eliminate TLESR, the base abnormalities in GERD patients, especially if these herbs combined with lifestyle changes. Demulcents and inflammation-modulators can help relieve acute symptoms and heal damaged tissues. These approaches need to be studied better to determine optimal doses and specific herbs, and to clarify when and if antacid drugs are needed in conjunction with herbs. In the meantime, there is a significant ability—and opportunity—to improve the status of patients with GERD through the use of botanical medicines. ■

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