Lemon balm (*Melissa officinalis*) is one of those herbal medicines that have been in use for thousands of years. Steeped in wine, lemon balm was used in ancient Greek and Roman cultures for various medicinal purposes, including the treatment of wounds and to treat venomous bites and stings.¹ These same uses also occurred in traditional Indian medicine.² Furthermore, old European medical herbals report its memory-improving properties.³ Modern uses tend to be more in the area of lemon balm’s calming effects, as well as its properties in soothing gastrointestinal complaints, although there has been some research in the area of cognitive function and antioxidant protection against radiation. This article will discuss the internal uses of lemon balm.

**Calming effects**

Anxiety disorders are common in many Western countries, and conventional drugs like benzodiazepines are often prescribed to relieve anxiety. However, these drugs have worrisome short-term and long-term side effects. Nervine herbs (herbs that quiet nervous excitement) have a long history of traditional use in relieving anxiety, insomnia, and mild depression. Case in point, lemon balm is often used as a mild mood elevator and calming herb in people with anxiety. It has been shown to improve attention and calmness in healthy volunteers,⁴ and reduce agitation in patients with mild to moderate Alzheimer’s disease (see discussion below under “Cognitive function”).⁵

In a double-blind, placebo-controlled, randomized, balanced-crossover study,⁶ 18 healthy volunteers received two separate single doses of a standardized lemon balm extract (300 mg, 600 mg) and a placebo, on separate days separated by a 7-day washout period to assess laboratory-induced psychological stress. The results showed that the 600 mg dose improved the negative mood effects of the stress, with significantly increased self-ratings of calmness. In addition, a significant increase in the speed of mathematical processing, with no reduction in accuracy, was observed after ingestion of the 300 mg dose.

In Germany, lemon balm is licensed as a standard medicinal tea to help promote sleep. This is due to the fact that Germany’s Commission E (their version of the FDA for natural medicines) approved the use of lemon balm for nervous sleeping disorders.⁷ Likewise, ESCOP, the European Scientific Cooperative on Phytotherapy (an umbrella organization representing national herbal medicine or phytotherapy [aka, herbal medicine] associations across Europe), lists tenseness, restlessness and irritability among the uses for lemon balm.⁸ Furthermore, Health Canada has approved lemon balm for traditional use as an herbal medicine sleep aid (in cases of
Lemon balm has also been used in clinical research along with other herbs for soothing gastrointestinal complaints. In one study, breast-fed infants with colic who were given 97 mg lemon balm, 164 mg fennel and 178 mg German chamomile twice daily for a week had reduced crying times compared to placebo. In another research, a 1 mL combination of lemon balm plus peppermint leaf, German chamomile, caraway, licorice, clown’s mustard plant, celandine, angelica, and milk thistle given orally three times daily over a period of four weeks to people with dyspepsia (i.e. indigestion) significantly reduced severity of acid reflux, epigastric pain, cramping, nausea, and vomiting compared to placebo.

**Cognitive function**
Some laboratory research has shown that lemon balm has cholinergic-binding properties, which means that it may have some of the cognitive and memory promoting effects of the neurotransmitter acetylcholine. To test this hypothesis, a randomized, placebo-controlled, double-blind, balanced-crossover study was conducted to investigate the effects of lemon balm on cognition and mood in 20 healthy, young participants. Single doses of 300, 600 and 900 mg of lemon balm extract (or matching placebo) were used at 7-day intervals. Cognitive performance was assessed immediately prior to dosing and at 1, 2.5, 4 and 6 hours thereafter. Results demonstrated improvements in cognitive function, as well as “calmness” at the earliest time points by the lowest dose, while “alertness” was significantly reduced at all time points following the highest dose. Overall, these results suggest that low doses of lemon balm may enhance calmness and high doses may have a mild sedative effect. A follow-up study showed essentially the same results.

In addition, a 4-month, parallel group, placebo-controlled trial was undertaken to assess the efficacy and safety of lemon balm extract (60 drops/day) in 42 patients with mild to moderate Alzheimer’s disease. The results were that lemon balm extract produced a significantly better outcome on cognitive function than placebo, and those using lemon balm had significantly less agitation than those in the placebo group.

**Antioxidant protection against radiation**
Radiology staffs are exposed to persistent low-dose radiation during work. Consequently, a study was conducted to determine the capability of lemon balm tea to improve oxidative stress status in 55 radiology staff members. They were asked to drink lemon balm tea (made from a tea bag with 1.5 g lemon balm leaf) for 30 days. Results showed that the lemon balm tea resulted in significant improvements in plasma levels of the antioxidant enzymes catalase, superoxide dismutase, and glutathione peroxidase. It also promoted a marked reduction in plasma DNA damage and lipid peroxidation. The researchers concluded that lemon balm tea markedly improved oxidative stress condition and DNA damage in radiology staff.

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restlessness or insomnia due to mental stress.

In addition, combining lemon balm with valerian root has also been shown to have benefit in sleep disorders. A combination of 80 mg lemon balm leaf extract and 160 mg valerian root extract three times daily improved the quality and quantity of sleep in healthy people, while the same dose once or twice daily decreased symptoms in children under age 12 years who have pathological restlessness.

**Soothing gastrointestinal complaints**
As with its calming effects, in Germany lemon balm is also licensed as a standard medicinal tea for gastrointestinal tract disorders and approved by Commission E for functional gastrointestinal complaints. Similarly, ESCOP lists for symptomatic treatment of digestive disorders, such as minor spasms, among its internal uses. Also, Health Canada has approved lemon balm for traditional use as an herbal medicine to help relieve digestive disturbances, such as dyspepsia. The approved modern therapeutic applications for lemon balm are supported based on its long history of use in well-established systems of traditional medicine, on phytochemical investigations, and on its documented pharmacological actions reported in *in-vitro* studies and *in-vivo* experiments in animals.
Dosage forms

Lemon balm can be used in the following dosage forms, using the following dosages:

<table>
<thead>
<tr>
<th>Form</th>
<th>Dosage</th>
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<tbody>
<tr>
<td>Brewed herbal tea:</td>
<td>1.5 g lemon balm leaf, 1-3 times per day</td>
</tr>
<tr>
<td>Fluid extract:</td>
<td>2-4 g dried equivalent, 1-3 times per day (1:1, 45% ethanol, 2-4 ml or 60 drops)</td>
</tr>
<tr>
<td>Tincture:</td>
<td>0.4-1.2 g dried equivalent, 1-3 times per day (1:5, 45% ethanol, 2-6 ml)</td>
</tr>
<tr>
<td>Standardized extract:</td>
<td>80-97 mg in combination with other herbs (as previously described)</td>
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In the case of its use as a calming agent as well as its properties in treating gastrointestinal complaints, administering lemon balm as a brewed herb offers the additional benefit of delivering the herb as a warm beverage, adding to its soothing qualities.

References


Gene Bruno is the Dean of Academics for Huntington College of Health Sciences. With graduate degrees in both nutrition and herbal medicine, Gene is a 32 year veteran of the Dietary Supplement industry. He has educated and trained natural product retailers and health care professionals, has researched and formulated natural products for dozens of dietary supplement companies, and has written articles on nutrition, herbal medicine, nutraceuticals and integrative health issues for trade, consumer magazines, and peer-reviewed publications.