

The Longwood Herbal Task Force
(<http://www.mcp.edu/herbal/default.htm>) and
The Center for Holistic Pediatric Education and Research

Sorrel (*Rumex acetosa* L.)

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Overview

Sorrel has historically been used as a salad green, a spring tonic, a diarrhea remedy and a weak diuretic. It is also one of four ingredients in the herbal cancer remedy, Essiac, but there are no clinical studies evaluating its use in treating any illness. Due to the lack of scientific study, recommendations about dosages cannot be made. Allergic reactions have been reported. It should not be used by patients taking calcium or iron supplements because of the risk of interfering with absorption of these minerals; nor should it be used by patients with a history of renal stones due to the oxalate content. Tannins may cause intestinal upset, renal and hepatic damage. There are no data on safety during pregnancy, lactation or childhood.

Historical and Popular Uses

Sorrel is a salad green, a minor spring tonic and the major ingredient in the cancer remedy, Essiac. It is also used as a diuretic, as an antibacterial and to soothe irritated nasal passages. It is used in Turkey as a treatment for anemia and as an appetite stimulant¹. It is not discussed in the German Commission E monographs or the ESCOP monographs, nor is it part of Traditional Chinese Medicine or Ayurvedic medicine.

Botany

Medicinal species: Rumex acetosa L.

Common names: Acid sorrel, Cigreto, Field sorrel, Kemekulagi, Red sorrel, Sheep's sorrel, Sorrel.

Botanical Family: Polygonaceae (as are rhubarb and dock).

Plant description: Sorrel can grow up to 100 cms tall. The leaves are fleshy, green and long with a fringed cone at the base. The leaves alternate on the reddish, grooved stems. It has greenish flowers with six stamens and three styles and a paintbrush-like stigma. The fruit is a triangular, brown to black nut. The stems and leaves are the parts used medicinally and for culinary purposes.

Where it's grown: Commonly grown in Europe and North America.

Biochemistry

Sorrel: Active Chemical Constituents²

- Oxalates, including calcium oxalate
- Tannins
- Anthracene derivatives: emodin, rhein, and others³
- Others: quinoids, flavonoids, phenylpropanoid

Sorrel leaves contain 0.3% *oxalic acid*⁴. Oxalic acid combines with calcium in the blood, forming insoluble calcium oxalate crystals that may be deposited in the kidneys, leading to renal stones. Persons with a history of renal stones should use great caution when consuming oxalate containing herbs and consider avoiding their use altogether.

Sorrel leaves contain 7 - 15% *tannins*⁴. Tannins are phenolic compounds found in many herbs and common foods. Plants that contain more than 10% tannins have potential adverse effects including upset stomach, renal damage, hepatic necrosis, and an increased risk of esophageal and nasal cancer. Tannins are astringent and are traditionally used topically for a variety of wet or oozing skin conditions such as poison ivy, as well as diarrhea and hemorrhages⁵.

Experimental Studies

Sorrel: Potential Clinical Benefits

1. Cardiovascular: none
2. Pulmonary: none
3. Renal and electrolyte balance: Diuretic
4. Gastrointestinal/hepatic: Antidiarrheal
5. Neuro-psychiatric: none
6. Endocrine: none
7. Hematologic: Anemia
8. Rheumatologic: none
9. Reproductive: none
10. Immune modulation: none
11. Antimicrobial: Antiviral and antibacterial
12. Antineoplastic: One of four components of herbal cancer remedy, Essiac
13. Antioxidant: none
14. Skin and mucus membranes: none
15. Other/miscellaneous: none

There are no experimental studies in humans evaluating sorrel's effectiveness for clinical use.

1. **Cardiovascular:** none
2. **Pulmonary:** none
3. **Renal and electrolyte balance:** Diuretic: No experimental data.
4. **Gastrointestinal/hepatic:** Antidiarrheal: Based on tannin content; no experimental data.
5. **Neuro-psychiatric:** none
6. **Endocrine:** none
7. **Hematologic:** Anemia: Traditional use; no experimental data.
8. **Rheumatologic:** none
9. **Reproductive:** none
10. **Immune modulation:** none

11. Antimicrobial: Antiviral and antibacterial

- i. *In vitro data:* Sorrel failed to demonstrate antimicrobial activity against Herpes simplex-1, Herpes simplex-2, HIV, *B. subtilis*, *E coli*, *Proteus morgani*, *P vulgaris*, *Pseudomonas aeruginosa*, *Serratia marcescens* or *Staphylococcus aureus*^{6,7}. There are no studies demonstrating that it has antimicrobial activity against any viruses or bacteria that are important human pathogens.
- ii. *Animal data:* none
- iii. *Human data:* none

12. Antineoplastic: One of four components of herbal cancer remedy, Essiac.

- i. *In vitro data:* Sorrel failed to demonstrate antitumor activity in the mouse leukemia-P388 model⁸.
- ii. *Animal data:* none
- iii. *Human data:* none

13. Antioxidant: none

14. Skin and mucus membranes: none

15. Other/miscellaneous: none

Toxicity and Contraindications

All herbal products carry the potential for contamination with other herbal products, pesticides, herbicides, heavy metals and pharmaceuticals.

Allergic reactions can occur to any natural product in sensitive persons.

Potentially toxic compounds in sorrel: Sorrel leaves contain 7 - 15% tannins^{4,9}. Plants that contain more than 10% tannins have potential adverse effects including upset stomach, renal damage, hepatic necrosis, and increased risk of esophageal and nasal cancer. Oxalates can precipitate calcium in the blood leading to renal damage¹⁰.

Acute toxicity: Allergic reactions to sorrel have been reported¹⁰. Chickens and sheep have been poisoned by eating too much sorrel due to its oxalic acid content^{10,11}. There is also a case report of fatal oxalic acid poisoning from eating sorrel soup¹².

Chronic toxicity: Chronic intake of high oxalate containing herbs such as sorrel can impair calcium and iron absorption⁹.

Limitations during other illnesses or in patients with specific organ dysfunction: Sorrel should be avoided by patients with kidney stones because of its high oxalate content⁴.

Interactions with other herbs or pharmaceuticals: Sorrel may impair calcium and iron absorption due to its high oxalate content⁹.

Safety during pregnancy and/or childhood: Unknown

Typical dosages

Provision of dosage information does NOT constitute a recommendation or endorsement, but rather indicates the range of doses commonly used in herbal practice.

Doses are given for single herb use and must be adjusted when using herbs in combinations. Doses may also vary according to the type and severity of the condition treated and individual patient conditions.

Adult doses:

Tablets: 2 coated tablets daily

Tincture: 50 drops of the alcohol (19%) tincture taken three times daily

Pediatric dosages: Unknown

Dosages used in herbal combinations: Amounts used in Essiac are proprietary secrets.

Availability of standardized preparations: None

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