

The Evidence on Sheep Sorrel Leaves vs. Roots in Essiac

One of the most controversial questions about the original Essiac formula is whether it contained sheep sorrel leaves or roots. Many users can be led down websites that rely on convincing copy rather than on evidence to learn about Essiac constituent plants. This post details the science behind using sheep sorrel leaves vs. roots. It cites research studies and unpacks popular manufacturer claims to help you choose for yourself.

Disclaimer: This article is for informational purposes only. Please discuss your health concerns with your doctor. The FDA has not approved Essiac or sheep sorrel for treating cancer or any other medical condition. Essiac and sheep sorrel are sold as herbal dietary supplements.

Does the Original Essiac Formula Contain Sheep Sorrel Leaves or Roots?

Key points

- All recent scientific studies on Essiac used formulations with sheep sorrel leaves and aerial parts
- Essiac formulations with sheep sorrel leaves show strong antioxidant activity and potential anti-cancer properties, according to preclinical studies
- Research to support the use of Essiac formulations with sheep sorrel roots is lacking
- Most scientific studies on sheep sorrel as a standalone remedy investigated the aerial parts. The leaves are high in flavonoid antioxidants, nutrients, and active compounds with potential anti-inflammatory and anticancer properties
- Research on the health properties of sheep sorrel roots as a remedy is sparse; a couple of studies suggest detoxification potential and higher levels of immune-supportive polysaccharides; More quality research is needed
- Additional clinical research is required to support the use of Essiac and sheep sorrel in general

A critical look at the data and manufacturer claims

Sheep sorrel (*Rumex acetosella* L.) is a medicinal and culinary herb. The whole plant is edible.

The Essiac online community and websites promoting Essiac contain contradictory information about the parts of the plant that were used in the original formula.

Some manufacturers say that the original formula used the whole plant. Others boldly state that the original Essiac formula “must contain sheep sorrel roots.”

Several such unverified sources cite the same archive document: Rene Caisse's letter to Dr. Chester Stock of the Memorial Sloan-Kettering Cancer Center. Allegedly, she wrote the following:

“I am very shocked at the way your people are using the materials I sent you. The way they are preparing it for injections is an absolute waste. They might as well inject sterile water... They are just using leaves and stems, leaving out the roots. They [the roots] are a part of Essiac.”

It's easy to jump to the conclusion that Rene was talking about sheep sorrel in the above excerpt.

Yet, this is not mentioned anywhere in this or other archive documents. Based on the above letter, we can only infer that Rene considered the roots of *some* Essiac constituent plant essential.

Based on the scientific data, it is more likely that Rene was referring to burdock root as “a part of Essiac.” Burdock root is the dominant constituent plant in Essiac, making up about 60% of the formula. Sheep sorrel is the second most predominant plant ([Seely et al., 2007](#)).

Therefore, there is no proof that sheep sorrel roots were used in Rene Caisse's original Essiac formula. There is also no direct evidence to claim that sheep sorrel is the most important ingredient in Essiac.

Studies of Sheep Sorrel Leaves vs. Roots in Essiac

What are sheep sorrel aerial parts?

The aerial parts of sheep sorrel include:

- Leaves
- Flowers
- Fruits
- Stalks

These parts of the plant are often also collectively referred to as sheep sorrel herb.

Summary of the evidence

All recent animal and cellular studies used Essiac with sheep sorrel aerial parts. These studies reported anti-leukemic and antioxidant activity ([Kabeel et al., 2018](#); [Ruiz et al., 2021](#); [Leonard et al., 2006](#)).

Published studies

Essiac liquid extract containing sheep sorrel leaves increased the lifespan of *C. elegans* roundworms and their ability to tolerate oxidative stress in one study ([Ruiz et al., 2021](#)).

Antioxidants in Essiac water extract with sheep sorrel aerial parts protected against DNA damage in test tubes ([Leonard et al., 2006](#)).

In another study on mice, **Essiac water extract with sheep sorrel aerial parts** reduced abnormal leukemia blood cells, improved weight, and recovered normal blood markers. The herbs used in this study were locally obtained in Egypt; their composition may differ from the herbs used in Essiac from Canada ([Kabeel et al., 2018](#)).

Essiac also had antioxidant, immune-balancing, and anti-inflammatory activity in cells. The researchers used Essiac® (from Essiac International Canada, Ottawa, Canada) but don't specify the exact formulation. However, all products from Essiac International Canada contain sheep sorrel leaves, not roots ([Seely et al., 2007](#)).

Another study reports antioxidant and anti-inflammatory activity of both Essiac and Flor-Essence in mouse cells. Essiac seemed to have a stronger and more widespread effect than Flor-Essence in this study, but the exact formulation used is unclear ([Cheung et al., 2005](#)).

Limitations

Surveys of Essiac use in cancer patients and the general population are not discussed in this article due to various formulations that the participants may have been used. Read more about these studies in our Essiac Review and our article about cancer and Essiac.

Benefits of Sheep Sorrel Leaves vs. Roots

Sheep sorrel botanical names

Understanding the potential benefits of sheep sorrel leaves and roots relies on properly identifying the plant used in scientific studies.

There are about 200 sorrel and dock species under the *Rumex* genus. All belong to the buckwheat family and grow throughout Europe, Asia, and North America. These various sorrel

species go by many names that often overlap and are used interchangeably, which can cause confusion ([Korpelainen & Pietiläinen, 2020](#)).

Sheep sorrel is botanically known as *Rumex acetosella* L. or, less commonly, *Acetosella vulgaris*. Other common names it goes by are red sorrel, sour weed, and dock.

Rumex acetosa L. is similar, but not the same as sheep sorrel. It is also called common sorrel, garden sorrel, and English sorrel.

Since none of the common names are reliable, always pay attention to the botanical name.

Sheep sorrel leaves & aerial parts

Flavonoid antioxidants

Different parts of sheep sorrel contain different active compounds. The composition of these active compounds affects the benefits of sheep sorrel as a standalone herbal remedy and as an essential part of Essiac.

Sheep sorrel aerial parts are rich in antioxidant flavonoids and polyphenols. The leaves and fruits contain the highest amount of flavonoids. ([Korpelainen & Pietiläinen, 2020](#); [Mostafa et al., 2011](#); [El-Bakry et al., 2012](#)).

Flavonoids and polyphenols are strong antioxidants that support general health. Flavonoids may help prevent or reduce the DNA and cellular damage that can cause cancerous mutations, but more research is needed ([Korpelainen & Pietiläinen, 2020](#)).

Additionally, flavonoids in sorrel shoots may bind aluminum and other heavy metals into non-toxic forms ([Korpelainen & Pietiläinen, 2020](#)).

The leaves are also high in other antioxidants that can scavenge and neutralize free radicals ([Lobo et al., 2010](#)).

In another experiment, sheep sorrel leaf extract showed the strongest activity in an antioxidant assay (DPPH assay). This assay measures how good different plant extracts are at scavenging and neutralizing free radicals that cause oxidative stress and cellular damage ([El-Bakry et al., 2012](#)).

Quercetin

Quercetin is the master flavonoid and one of the most promising active compounds in Essiac. This well-researched plant antioxidant with anticancer potential is higher in sorrel than in any other leafy green.

According to the USDA Database for the Flavonoid Content of Selected Foods, 100g of fresh sorrel (the dock plant) packs 86.2 mg of quercetin. In comparison, 100 g of fresh onions—

popularly viewed as the food with the highest quercetin content—contain between 22.40 mg and 51.82 mg ([Bhagwat et al., USDA](#); [National Onion Association, Onion health research, 2020](#)).

All fresh plants contain plenty of water. Dried and powdered sorrel leaf, which is found in Essiac, is expected to be far more concentrated in quercetin.

The USDA analysis did not specify the exact species of sorrel tested. Another analysis confirmed that **sheep sorrel leaves are also an exceptional source of quercetin**. An extract from sheep sorrel leaves (at early vegetative stages) contained the highest amount of quercetin compared to the whole plant and the roots ([El-Bakry et al., 2012](#)).

Quercetin boosts glutathione and other vital antioxidant pathways in the body.

Glutathione cleanses free radicals and toxins and has been called “the mother of all antioxidants” and “the master detoxifier.” Thanks to its mechanism, quercetin has broad medicinal potential. Scientists believe it may reduce inflammation, soothe allergies, fight viruses, and support immune and heart health ([Adeoye et al., 2018](#); [Shoskes et al., 1999](#); [Zahedi et al., 2013](#)).

Based on experiments in animals and cells, quercetin may act on several anti-cancer pathways. It’s thought to have direct “proapoptotic effects,” which means that it might block human cancers from developing or progressing in the first place. Clinical studies have yet to be carried out, though ([Tang et al., 2020](#); [Kowalski et al., 2005](#)).

Additionally, some scientists hypothesize that quercetin may reduce the division and spread of already existing tumors. Preliminary data reveal that quercetin seems to stop tumors from forming new blood vessels (angiogenesis) and increases their susceptibility to cellular death. However, this hasn’t been proven in humans either ([Rauf et al., 2018](#)).

All in all, researchers agree that quercetin has strong anticancer potential that deserves further attention as a prospective safe complementary cancer therapy ([Tang et al., 2020](#)).

Tannins

Aerial parts of sheep sorrel contain tannins. Tannins are *astringents*, “shrinking” plant actives that help stop bleeding and diarrhea. They’re the reason red wine and dark chocolate can cause a drying sensation in your mouth. Tannins may also help reduce inflammation and boost antioxidant defense ([Derksen et al., 2014](#)).

Vitamin C

Sorrel leaves are an excellent source of vitamin C. The leaves of common sorrel from Bulgarian markets contained 750 to 1200 mg of vitamin C per 100 g of plant matter, which is over 800% of the RDA ([Atanassova et al., 2018](#)).

Like common sorrel, sheep sorrel leaves are also high in vitamin C ([Stopps et al., 2011](#)).

Due to its tart-tasting leaves rich in vitamin C, European and North American cultures used sheep sorrel leaves as both food and medicine. Many North American aboriginal people prepared sheep sorrel leaves (raw, in teas, or extracts) to treat and prevent scurvy. Folk healers also gave it as therapeutic food for health conditions caused by vitamin C deficiency ([Stopps et al., 2011](#)).

Other Nutrients

Sheep sorrel leaves are a good plant-based source of **protein and contain all essential amino acids** (including anti-inflammatory methionine derivatives) ([Kuhnlein & Turner, 1991](#); [Bello et al., 2019](#)).

Other nutrients found in sheep sorrel leaves include vitamins C, D, E, K, vitamins of the B complex, provitamin A, iron, calcium, and organic acids ([Stopps et al., 2011](#)).

However, raw sheep sorrel leaves can also be high in oxalic acid, a sour-tasting anti-nutrient. Oxalic acid can reduce the absorption of minerals like calcium and magnesium and be dangerous for people with kidney problems. For this reason, the use of raw sheep sorrel leaves should be limited ([Tuazon-Nartea & Savage, 2013](#)).

Cooking the leaves and preparing them with calcium-rich foods neutralizes most of the oxalic acid. Also, **herbal supplements with sorrel leaf are low in oxalic acid** ([Tuazon-Nartea & Savage, 2013](#)).

Emodin

The leaves of sheep sorrel and the whole plant contain the greatest amount of the **antioxidant emodin** ([Mostafa et al., 2011](#); [El-Bakry et al., 2012](#)).

Some scientists believe emodin may have anti-tumor activity. Emodin was active against liver, pancreatic cancer, breast, ovarian, prostate, and lung cancer cells in test tubes. It's also being researched for making tumor cells more sensitive to chemotherapy, but human studies are lacking ([Gupta & Rai, 2018](#)).

Additionally, emodin may improve blood flow, stimulate bowel movements, and help fight viruses and parasites ([Gupta & Rai, 2018](#)).

Other sorrel species

One analysis discovered a variety of flavonoid antioxidants in an extract of the aerial parts of common sorrel (*Rumex acetosa*), including several catechins. Catechins are thought to be responsible for the strong antioxidant action of green tea. It's uncertain to what extent sheep sorrel herb contains these flavonoids ([Bicker et al., 2009](#)).

An extract from the aerial parts of common sorrel (*Rumex acetosa*) reduced the spread of the herpes simplex virus type-1 (HSV-1) in cells. Scientists identified proanthocyanidin and flavonoid antioxidants as the active compounds ([Gescher et al., 2011](#)).

A similar extract of common sorrel (*Rumex acetosa*) protected cells from infection with the influenza A virus, a common cause of the flu. Sorrel seemed to prevent infection by stopping the virus from entering cells. The authors identified a specific antioxidant (procyanidin B2-di-gallate) as the promising active ([Derksen et al., 2014](#))

It's unknown whether sheep sorrel has similar antiviral activity.

Sheep sorrel roots

Anthraquinones and polysaccharides

The roots of sheep sorrel are high in **anthraquinones and polysaccharides**. These compounds may carry some antitumor and immune-supportive potential. For example, emodin is an anthraquinone. Although emodin is higher in sheep sorrel leaves, other anthraquinones may be higher in the roots ([Korpelainen & Pietiläinen, 2020](#)).

Total antioxidants

According to some analyses, sheep sorrel roots may contain the highest amount of total antioxidants. However, the leaves show stronger antioxidant activity ([El-Bakry et al., 2012](#)).

Liver protection

According to one animal study, sheep sorrel may reduce liver damage. Sorrel extract helped protect the animals' livers and vital organs from toxins. The researchers likely used sheep sorrel roots, but their methodology is unclear and the quality of the study is poor ([Alkushi, 2017](#)).

Also, citrate in sorrel roots may bind aluminum into non-toxic forms ([Korpelainen & Pietiläinen, 2020](#)).

Other sorrel species

According to one analysis of a type of Tunisian sorrel (*Rumex roseus*), extracts from the roots had stronger antioxidant activity than the leaves. Both the roots and stems reduced inflammation in intestinal cells. ([Chelly et al., 2021](#))

It's uncertain if these findings have implications for sheep sorrel.

Wild vs. cultivated varieties

Wild-crafted sheep sorrel is likely superior to cultivated plants. One study discovered that wild sheep sorrel is higher in the total amount and activity of antioxidant phenolics than the cultivated variety ([Isbilir et al., 2013](#)).

In Conclusion

Science does not support popular claims that sheep sorrel roots are of higher medicinal value than the leaves.

All published studies on Essiac used sheep sorrel aerial parts, not roots. Sheep sorrel leaves have higher levels of active compounds and antioxidant activity than the roots, according to research.

The majority of published studies on sheep sorrel alone tested the leaves or aerial parts. Quality studies on sheep sorrel roots are lacking.

Stronger evidence supports the use of sheep sorrel aerial parts than the roots in Essiac and in herbal medicine in general.