Phytoestrogens in Essiac, Flor-Essence & Food: Good or Bad?

Endocrine disruptors or hormone balancers? The mention of phytoestrogens triggers polarizing opinions. Yet, these plant actives are abundant in many foods and herbal mixtures, including Essiac and Flor-Essence. Keep reading to uncover what science says about their effects on health, breast cancer risk and treatment, and the pros and cons of Flor-Essence vs. Essiac.

Disclaimer: This article is for informational purposes only. Please discuss your health concerns with your doctor. Breast cancer chemotherapeutic drugs are strong medications that can interact with many other drugs, supplements, and foods. Do not take any supplements before consulting your health care team. The FDA has not approved Essiac for treating cancer or any other medical condition. Essiac is sold as a herbal dietary supplement.

Summary

- Phytoestrogens are found in many plants and foods. They are likely safe when consumed in moderate amounts through diet and supplements
- Most herbs in the original Essiac formula contain phytoestrogens; no obvious safety concerns have been identified
- Most herbs in the eight-herb Flor-Essence formula also contain phytoestrogens; some safety concerns have been linked with red clover and caution is advised in breast cancer patients
- Randomized, placebo-controlled clinical trials are needed to determine the effects of Essiac and Flor-Essence on hormonal balance and breast cancer risk

What Are Phytoestrogens?

Definition

Phytoestrogens are plant-based compounds similar to estrogen, the main female sex hormone. Although all phytoestrogens bear some resemblance to estrogen, they can be completely different in their structure and health effects.

Some phytoestrogens mimic estrogen in the body and are thought to soothe menopausal symptoms. Others oppose the effects of estrogen. Some phytoestrogens have negligible hormonal effects and mainly act as antioxidants, anti-inflammatories, or even antimicrobials (Mas & Roca, 2020; Landete et al., 2016).

Most people associate phytoestrogens with soy and herbs used for hormonal problems like black cohosh. Yet, did you know that the main class of antioxidants in plants–flavonoids–are phytoestrogens? The fiber found in flaxseed, broccoli, and whole grains is also phytoestrogenic (Mas & Roca, 2020).

Therefore, phytoestrogens are nearly impossible to avoid. However, the *type* and *quantity* of phytoestrogens you consume make a crucial difference.

How estrogen receptors work

To achieve its effects, estrogen has to bind to its receptors on cells. The activity of estrogen receptors affects all systems in the body–including reproductive development and health, bone health, heart health, metabolism, antioxidant status, and behavior in both men and women (Paterni et al., 2014; Mas & Roca, 2020).

There are two main types of estrogen receptors (ER) in the body (Paterni et al., 2014):

- **ERa, the "bad" receptors:** mostly found in breast tissue and reproductive organs; might cause uncontrolled cell division that can lead to cancer
- **ERb**, **the "good" receptors:** found in some reproductive organs and the immune system; might counteract cancerous cell division

As a rule, phytoestrogens bind more to ERb receptors, especially at higher doses (Bilal et al., 2014; Mas & Roca, 2020)

Studies suggest that phytoestrogens in Essiac also mainly target ERa, with little to no binding affinity for ERb (Ruiz et al., 2021).

Food and herb sources

Here are the main classes of phytoestrogens and their **food sources** (Tanwar et al., 2021):

- Beans, legumes, and soy products (isoflavones)
- Flaxseed, cereals, fruit, vegetables, and seeds (lignans).
- Red wine, berries, and other fruits (stilbenes and flavonoids, including resveratrol)

The following **herbs** also all contain phytoestrogens (Tanwar et al., 2021):

- Green tea
- Turmeric
- Olive leaves
- Black cohosh
- Chinese skullcap
- Elder
- Licorice
- Hops
- Culinary herbs (like basil, mint, parsley, rosemary, and thyme)

- Lavender
- Red clover
- **Most herbs in Essiac and Flor-Essence**

Are phytoestrogens beneficial or harmful?

Scientists were first intrigued by the observation that Asian populations, who eat more soy and soy-derived foods, seem to be healthier. They have a lower incidence of breast, ovarian, and prostate cancer, fewer heart and bone-related problems, and women seem to experience a healthier transition to menopause (Mas & Roca, 2020; Tanwar et al., 2021).

The average daily intake of phytoestrogens in the diet of the Asian population is 20-50 mg, whereas in Western countries it is <1 mg. This could be related to a higher intake of various plant-based foods (not just soy) and the widespread use of traditional, herbal medicine (Tanwar et al., 2021).

Yet, research findings are conflicting.

On the one hand, low doses of phytoestrogens can promote the growth of breast cancer cells in test tubes (Rice & Whitehead, 2006).

On the other hand, data from cells might not apply to humans. Most studies suggest that phytoestrogens may have a positive effect on the prevention of menopausal symptoms, type 2 diabetes, heart disease, obesity, and cancer. But, there is still no conclusive evidence to back up a direct link. Higher phytoestrogen intake could simply reflect a healthy diet and lifestyle (Mas & Roca, 2020)

Based on the overall evidence, high dietary intake of phytoestrogens does not seem to increase the risk of breast cancer in the general population, in women with benign breast disorders, in those at risk of breast cancer, and even in cancer survivors (Rice & Whitehead, 2006; Alipour et al., 2020).

However, due to a lack of clinical data, high doses of phytoestrogens are still not recommended. Also, more long-term human studies using lower doses and mixtures of phytoestrogens are needed to determine if and which dietary supplements have beneficial effects on breast cancer (Alipour et al., 2020).

Researchers are also exploring whether phytoestrogens can protect healthy cells, reduce chemotherapy side effects, or interact with chemotherapy drugs in any way. Read more about the research behind Essiac and chemotherapy here (Mas & Roca, 2020).

Some phytoestrogens also hold the potential for reducing damage to healthy cells from cancer radiotherapy. Other phytoestrogens might make cancer cells more sensitive to radiotherapy, but no human studies are available to back up either claim (Mas & Roca, 2020).

Some researchers claim that soy may be endocrine-disrupting, particularly when it's consumed by children, and that more research across all age groups is needed (Patisaul, 2018).

The effects of phytoestrogens may differ from one person to another depending on factors like sex, age, gut microflora, overall health status, and individual variations in metabolism (Mas & Roca, 2020; Bilal et al., 2014; Patisaul, 2018).

Why chemical estrogens are disruptive

Plant estrogens are natural compounds from plants, whereas chemical estrogens are man-made toxins. Industrially grown plants may contain both.

Environmental toxins–including pesticides, fertilizers, and chemicals from plastic, metal food cans, and cleaning products–are endocrine disruptors. They interfere with the body's hormonal balance, causing developmental, reproductive, neurological, and immune health problems (Monneret et al., 2017).

The controversy about the pros and cons of eating soy and other phytoestrogen-rich foods has to take this into account. Soy is nowadays mostly mass-produced with pesticides and GMO crops. According to one animal study, the more processed soy is, the more likely it will stimulate the growth of estrogen-dependent breast cancer tumors (Helferich et al., 2008).

This is something to have in mind when purchasing herbal remedies as well since the way a plant was grown and harvested will impact its level of toxins. **Organic, wild-harvested plants are the healthiest choice** (Tripathy et al., 2017).

Phytoestrogens in Essiac & their Health Effects

Phytoestrogenic herbs and active compounds in the original four-herb Essiac formula include:

Sheep sorrel herb

Sheep sorrel herb is exceptionally high in the phytoestrogen **quercetin**, a powerful antioxidant (Mostafa et al., 2011; Bhagwat et al., USDA).

The classification of quercetin as a phytoestrogen is still controversial, but studies have recently revealed that it activates the “good” estrogen receptor alpha (ERa) (Costa et al., 2016).

Emodin is another phytoestrogen in sheep sorrel. It’s being researched for its potential anti-cancer, circulation-promoting, bowel cleansing, and virus- and parasite-fighting properties Mostafa et al., 2011; El-Bakry et al., 2012; Gupta & Rai, 2018).

Emodin seemed to be active against estrogen receptor-positive (ER+) breast cancer cells, but human data are lacking (Sakalli-Tecim et al., 2021).

Burdock root

The main active compounds in burdock root, **arctigenin and arctiin**, are phytoestrogens. They are being researched for their immune-boosting, anti-inflammatory, and potential anti-cancer

effects. Artigenin and arctiin belong to the lignans family of phytoestrogens, similar to flaxseed (Moro & Clerici, 2021; Hsieh et al., 2004).

Arctigenin helped kill estrogen receptor-negative (ER-) breast cancer cells in one study by affecting the activity of cancer-related genes. Clinical trials in breast cancer patients haven't been carried out, though (Hsieh et al., 2014).

Burdock root also contains **quercetin**, but in smaller amounts than sheep sorrel, and many other phytoestrogenic **flavonoids** (Ferracane et al., 2010).

Rhubarb root

Like sheep sorrel, rhubarb root also contains **emodin**. **Other phytoestrogens** in rhubarb root include rhaponticin and desoxyrhaponticin, along with several flavonoids and stilbenes (Kazuhiro et al., 2001; Kolodziejczyk-Czepas & Oleksandra Liudvytska, 2020; Chang et al., 2016).

A standardized rhubarb root extract (ERr731®, also known as Estrovera) is used for menopausal symptoms (Chang et al., 2016).

Rhubarb root extract and its active compounds activated only the "good" estrogen receptors (ERb) without affecting the "bad" ERa in experiments on breast and uterine lining tissue (Chang et al., 2016).

Slippery elm bark

Based on the current research, slippery elm bark does not contain any phytoestrogens. It may have weak estrogen-like activity, but this is uncertain.

Slippery elm bark contains **lignins**, insoluble strong fibers that lend bark its rigidity. Gut bacteria might be able to break down lignins into phytoestrogenic lignans, but this hasn't yet been proven (Watts et al., 2012; Peterson et al., 2010).

Several studies found a link between lignin intake and reduced risk of colorectal, oral, pharyngeal, and esophageal cancers but not with breast, ovarian, and renal cancers. More research is needed (Peterson et al., 2010).

Essiac & breast cancer

A 2021 cell-based study found that high concentrations of Essiac liquid extract reduced cell proliferation in breast cancer cells. Low doses didn't produce a consistent result. However, many sources still caution against using Essiac in hormone-sensitive cancers based on study findings from 2006 (Ruiz et al., 2021; Kulp et al., 2006).

The 2006 study warned against using Essiac in breast cancer, as they found that low Essiac concentrations (1% - 8%) increased proliferation in both estrogen receptor (ER) positive and negative breast cancer cell lines (Kulp et al., 2006).

The warning is based on a belief that phytoestrogens found in the four-herb Essiac mixture may have a negative effect on breast cancer just because they have some estrogenic activity. Yet, the 2006 study did not specify which estrogen receptors were being targeted (Kulp et al., 2006).

New evidence suggests that phytoestrogens in Essiac likely activate the “good” estrogen receptors (ERb) and appear to be safe at the recommended doses (Ruiz et al., 2021).

A note about dosage

Many active compounds have a stimulating effect at low doses and a toxic or blocking effect at high doses. Low-dose stimulation is seen as beneficial and healthy in normal cells. It’s been coined *hormesis* and is viewed as adaptive, “good” stress. Adaptogenic herbs act through this mechanism (Panossian et al., 2021).

In cancer cells, hormesis works the other way: low dose stimulation is unwanted and causes cancer growth, while high-dose inhibitory action may help fight cancer (Kafi et al., 2018).

The controversial study on Essiac and Flor-Essence mentioned above fits into this theory (Kulp et al., 2006).

In another cellular study, arctigenin from burdock root followed the same curve: it stimulated cancer growth at low doses and blocked it at high doses (Kafi et al., 2018).

Whether or not different Essiac and Flor-Essence doses have similar effects in cancer patients has yet to be researched.

The bottom line

Although more evidence is needed, phytoestrogens in the four-herb Essiac mixture seem to be safe for most people.

Preliminary research suggests that Essiac phytoestrogens activate pathways that may help prevent breast cancer development. However, their effects on breast cancer need to be determined in clinical studies.

Phytoestrogens in Floressence & their Health Effects

Floressence is a mixture of eight herbal extracts. In addition to those in Essiac, phytoestrogenic herbs and active compounds in Floressence include:

Red clover

Red clover contains a complex mixture of **phytoestrogens, including genistein**. Genistein belongs to the isoflavone family of phytoestrogens, which are also high in soy (Essiac/Flor Essence PDQ).

Red clover may interfere with hormonal therapy drugs, including breast cancer chemotherapy. More research on potential drug interactions is needed (Tripathi et al., 2014).

In one study on breast cancer cells, red clover activated toxic metabolic pathways and blocked detoxification (Dunlap et al., 2017).

The authors concluded that red clover might be safe in normal breast tissues but potentially toxic in breast cancer. They cautioned that breast cancer patients should avoid red clover and other herbal supplements with isoflavones until more safety data become available.

Other studies have also reported potential harmful effects of red clover phytoestrogens, such as stimulation of breast cancer growth at low concentrations. Genistein increased the growth of breast cancer cells in test tubes and rats (Lemos, 2001; Hsieh et al., 1998).

Watercress

Watercress contains **rutin**, a sugar-bound form of the phytoestrogen quercetin (Hyun et al., 2014).

In a cell-based study, watercress extract increased the activity of bone-building cells by mimicking estrogen. Researchers believe watercress might hold potential for supporting bone health in menopausal women (Hyun et al., 2014).

Blessed thistle

Blessed thistle contains **several phytoestrogens** (lignans and flavonoids). It's promoted for increasing breast-milk supply, possibly due to estrogen-like activity. However, no clinical trials support this use (Drugs and Lactation Database).

Kelp

Kelp is a type of brown seaweed that contains phytoestrogenic **flavonoids and lignans** (Gomez-Zavaglia et al., 2019).

In a study of 15 postmenopausal women, seaweed had beneficial effects on estrogen and phytoestrogen metabolism and gut flora (Teas et al., 2009).

Seaweeds, including kelp, are also being researched for potential anticancer activity, especially against breast cancer, but clinical trials are still lacking (Moussavou et al., 2014).

Floressence & breast cancer

In one study on mice, Flor-Essence did not block estrogen receptor-negative (ER-) breast cancer development. The tonic was given at different life stages, but it didn't seem to influence whether the mice would develop breast cancer or not (Bennet et al., 2011).

In a 2006 study, both Flor-Essence and Essiac stimulated the growth of breast cancer cells in test tubes at low doses. However, Flor-Essence had a stronger estrogen-like effect than Essiac (Kulp et al., 2006).

For the complete evidence on Essiac and cancer, go here.

The bottom line

It's difficult to say for certain whether adding red clover and other herbs to the original Essiac formula was a good idea since no randomized, placebo-controlled clinical studies are available.

However, the existing preliminary evidence suggests that red clover may be problematic, especially in breast cancer patients. Caution is advised due to a lack of human safety data and the potential of this herb to block detoxification in breast cancer cells.

In Conclusion

Phytoestrogens are likely safe, and they may offer benefits to certain populations. Both Essiac and Flor-Essence contain phytoestrogens. No randomized, placebo-controlled clinical trials have been carried out on either, so it's impossible to compare their safety and effectiveness.

According to preliminary data, the addition of red clover to Flor-Essence may block detox pathways in breast cancer. These findings warrant further research and suggest that Flor-Essence should be used with caution in breast cancer patients or in those at risk.

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