Hawthorn

WHAT IS IT KNOWN AS?
Known as simply hawthorn, its various forms include hawthorn leaf, hawthorn leaf with flower extract, hawthorn flower and hawthorn fruit. For therapeutic use, only hawthorn leaf with flower extract has been approved by The German Commission E, a scientific panel who has extensively reviewed supplements for their chemical properties, usefulness and safety. Therefore, "hawthorn," as used in this discussion, refers only to hawthorn leaf with flower extract (1).

There are many other names for hawthorn, including aubepine, cratqegi folium cum flore, English hawthorn, haw, hawthorne, may, may-bush, oneseed hawthorn and whitehorn. Scientific names include Crataegus laevigata, also known as Crataegus oxyacantha (2).

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Hawthorn extract also contains the active ingredients hyperoside, vitexin and rutin (3).

HOW DOES IT WORK?
Hawthorn is felt to have many effects on the cardiovascular system, which include:
• strengthening heart muscle contraction.
• increasing coronary blood flow by dilating the heart's arteries (5).
• improving the conduction system of the heart, potentially increasing the heart rate (3-5).

Improved heart muscle contraction, dilation of the heart's arteries and increased blood flow within these arteries is felt to occur by increasing the permeability of the heart cell walls to chemicals, which leads to increased energy production within the cells (6). One study has demonstrated a potential benefit in treating cardiac arrhythmias (irregular heart rhythms) by blocking potassium channels within the heart, not unlike the mechanisms involved in more traditional medications that treat irregular heart rhythms (7).

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The therapeutic benefits of hawthorn are felt to be secondary to its flavonoid and procyanidin properties.

Is it for me?
Is it safe?
Are there any reported interactions with herbs, supplements or drugs?
Are there any interactions with laboratory tests?
Where can it be found naturally?
What is the most appropriate dosage?
HAS IT BEEN STUDIED IN HEART DISEASE?
There is limited information about the usefulness of hawthorn in treating irregular heart rhythms, hypertension (high blood pressure), angina (chest pain) and elevated pressures within the right heart (1,3,4,5,8). As a result, it is difficult to draw any conclusions about its clinical benefit in these disorders.

However, the potential benefits of hawthorn in alleviating the symptoms associated with mild congestive heart failure have been studied in both animals and humans.

• In animal studies hawthorn has been demonstrated to dramatically improve heart function and blood flow through the heart's arteries (9).

• In humans, four of five placebo-controlled studies utilizing hawthorn demonstrated subjective improvement of symptoms by patient and physician reports (10). In a double-blind randomized study performed in patients with mild congestive heart failure, patients received either a special extract of hawthorn or a placebo for eight weeks. At the conclusion of the study, patients who received hawthorn extract had a significant improvement in their heart rate and blood pressure in response to exercise, were able to exercise longer and had fewer symptoms typically associated with this condition (11).

IS IT FOR ME?
It is important to be cautious when the demonstrated benefits of any supplement, or medication, are based mainly on subjective improvement without clear reduction in more measurable clinical events such as repeat hospitalizations or death, or objective test results such as an improvement in the strength of the heart's contraction. However, hawthorn has been studied in people with congestive heart failure and there does appear to be a perceived symptomatic benefit even in placebo controlled trials. In addition to traditional medications for the treatment of congestive failure, hawthorn may provide some benefit in reducing symptoms and appears to carry few side effects. Caution must be exhibited with regard to drug interactions given that many patients with congestive heart failure are concurrently taking one, if not several, of these medications with potential interactions.

IS IT SAFE?
Hawthorn is considered safe at usual dosages. Toxic dosages are felt to occur at 100 to 1000 times the therapeutic dose (3). At high serum concentrations, sedation may occur (12). Hypotension (low blood pressure) and irregular heart rhythms are also possible with high concentrations. The long-term effects of hawthorn use have not been adequately studied.
ARE THERE ANY REPORTED INTERACTIONS WITH HERBS, SUPPLEMENTS OR DRUGS?

**Herb and supplement interactions:**

Hawthorn should not be used together with cardiac glycosides containing herbs such as digitalis leaf, hedge mustard, figwort, lily of the valley roots, motherwort, black hellebore, Canadian hemp roots, oleander leaf, pheasant's eye, pleurisy root, squill bulb leaf scales and strophanthus seeds (1,5,13).

In addition, in order to avoid an unpredictable interaction, it should not be used with other herbs felt to have cardioactive effects. Such additional herbs include calamus, wild carrot, shepherd's purse, broom flower, scotch quassia, parsley, mate, white horehound, Panax ginseng, ginger, fumitory, fenugreek, European mistletoe, devil's claw, coltsfoot, cola and cereus (14).

**Drug interactions:** Coronary vasodilatory drugs that dilate the blood vessels, such as theophylline, caffeine, papaverine, sodium nitrate, adenosine and epinephrine, should be avoided because of additive effects when used along with hawthorn (3).

Hawthorn used together with central nervous system (CNS) depressant drugs may lead to additive CNS effects (3,14).

Use of hawthorn along with digoxin (Lanoxin), digi-toxin or g-strophanthin may have additive effects and should be monitored by a physician to determine whether the dosage should be reduced or discontinued (14).

Hawthorn may cause a hypertensive response resulting in high blood pressure when used in combination with beta blockers such as metoprolol (Lopressor, Toprol XL), atenolol (Tenormin) or propranolol (Inderal) (15).

Hawthorn appears to possess some ability to inhibit cardiac rhythm disturbances, not unlike many traditional cardiac medications. Thus, the use of hawthorn together with antiarrhythmic medications such as amiodarone (Cordarone, Pacerone), propafenone (Rhythmol), and sotalol (Betapace) should be avoided, given the potential for undesirable interactions.

Due to similar effects on the movement of potassium inside the heart's electrical conducting cells, hawthorn should not be taken along with cisapride (Propulsid).

ARE THERE ANY INTERACTIONS WITH LABORATORY TESTS?

No interactions with laboratory tests have been reported.

WHERE CAN IT BE FOUND NATURALLY?

Hawthorn is a plant native to the northern temperate zones of North America, Europe and Asia. The hawthorn leaves, flowers and fruit are collected in the wild and dried. Various processes are then applied to package the active ingredients.
WHAT IS THE MOST APPROPRIATE DOSAGE?
An extract of hawthorn with leaf and flower is the only form providing a clear clinical benefit, as recommended by The German Commission E (1). A water-ethanol extract of hawthorn with leaf and flower is best. Most sources recommend taking 160 to 900 mg in two to three divided doses per day. It takes six weeks to assess whether hawthorn is beneficial.

REFERENCES