Chapter 13

Hawthorn

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Summary

Hawthorn appears to be effective for the treatment of stage II congestive heart failure. The mechanism(s) by which hawthorn exerts this positive effect is still unclear as results regarding changes in particular cardiovascular parameters are mixed. Human clinical studies of the use of hawthorn in other cardiovascular conditions are lacking. Adverse effects of hawthorn therapy appear to be mild and no significant drug interactions have been reported (though, in theory it might potentiate the effect of vasodilators).

Key Words: Crataegus oxyacantha; heart failure; hypertension; vasodilation; digoxin.

1. History

Hawthorn is a spiny, small tree or bush with white flowers and red berries (haws), each containing one to three nuts, depending on the species (1). Hybridization is common among individual species, making them difficult to identify (2). Hawthorn is a member of the rose family and is found in Europe, North Africa, and western Asia (3). It can reach heights of 25–30 ft and is used as a hedge (1,4). The flowers grow in clusters and bloom from April to June, and the deciduous leaves are divided into three, four, or five lobes (1). The use of hawthorn can be dated back to Dioscorides in the first century CE (5).

Uses for the herb have included high and low blood pressure, tachycardia, arrhythmias, atherosclerosis, and angina pectoris (1). Hawthorn is also purported to have spasmylytic and sedative effects (1). Native Americans used it as a diuretic for kidney and bladder disorders and to treat stomach aches, stimulate appetite, and improve circulation (4). The flowers and berries have
astringent properties and have been used to treat sore throats in the form of haw jelly or haw marmalade (5).

2. Current Promoted Uses

Hawthorn is promoted for use in heart failure, hypertension, arteriosclerosis, angina pectoris, Buerger’s disease, paroxysmal tachycardia (6), heart valve murmurs, sore throat, skin sores, diarrhea, and abdominal distention (7).

3. Sources and Chemical Composition

Crataegus oxyacantha (L.), Crataegus laevigata, Crataegus monogyna Jacquin, English hawthorn, haw, maybush, whitethorn (1), may, mayblossom, hazels, gazels, halves, hagthorn, ladies’ meat, bread and cheese tree (3).

4. Products Available

Available products include tea, 1:5 tincture in 45% alcohol, 1:1 liquid extract in 25% alcohol (6), and capsules of 250, 455, and 510 mg. The French Pharmacopoeia requires 45% ethanol for the fluid extract and 60% ethanol for the tincture (8). It is recommended that 0.5–1 mL of liquid extract or 1–2 mL of tincture be taken three times a day (6). The tea is made from 0.3–1 g of dried berries infused in hot water and taken three times a day (4,6). A typical therapeutic dose of extract, standardized to contain 1.8% vitexin-4 rhamnoside, is 100–250 mg three times daily. A standardized extract containing 18% procyanidolic oligomers (oligomeric procyanidins) is dosed at 250–500 mg daily (9).

5. Pharmacological/Toxicological Effects

5.1. Cardiovascular Effects

Hawthorn extracts purportedly dilate coronary blood vessels, decrease blood pressure, increase myocardial contractility, and lower serum cholesterol (9). Benefits have been demonstrated in patients with heart failure (10). In patients with stage II New York Heart Association (NYHA) heart failure, doses of 160–900 mg/day of the aqueous-alcoholic extract for up to 56 days showed an increase in exercise tolerance, decrease in rate/pressure product, and increased ejection fraction (11). Degenring and colleagues, in a randomized, double-blind, placebo-controlled trial, studied a standardized extract of fresh Crataegus berries (Crataegisan®) for the treatment of patients with