

Crataegus & Geranium Combination (Cardioalliance)

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Received: 28 Jul 2024; Accepted: 18 Aug 2024; Published: 25 Aug 2024

Citation: George Zdravkov. Crataegus & Geranium Combination (Cardioalliance). J Med - Clin Res & Rev. 2024; 8(8): 1-4.

ABSTRACT

The article will present the indications, analysis of the component actions, cautions, contraindications, and modifications of the herbal formula Crataegus & Geranium Combination (Cardioalliance). The indications and analysis of the component actions will be done from the points of view of the Western and Traditional Chinese Medicines. The medical statistic of the Crataegus & Geranium Combination effectivity is done on the base of the 35 years practice of the author.

Keywords

Crataegus, Geranium, Herbal heart health, Cardioalliance, Heart supplement.

Introduction

Crataegus & Geranium Combination (Cardioalliance) is the herbal formula created on the base of the Traditional Bulgarian Medicine. Bulgaria has the thousand-years old history of the selection, cultivation, and export of the medical herbs, same as the China.

Indications and Analysis of the Component Actions**Indications**

Western medicine - Heart insufficiency, congestive heart failure, valve prolapse, stenocardia, angina pectoris - short of the breath and heart pain during the physical activity, atherosclerosis, and nervous cardiopathy.

Traditional Chinese medicine - Heart Qi insufficiency, Heart Yang and Yin insufficiency, Qi stagnation, and blood stasis.

Effects

Positive inotropic, dromotropic and chronotropic effects, increased coronary and myocardial circulatory perfusion, antiarrhythmic, reduced peripheral vascular resistance, sedative, anti-inflammatory, antimicrobial, antiviral, antifungal, anthelmintic, antitumoral, decrease capillary fragility, inhibition of platelet aggregation, antioxidant, antimutagenic, antihyperlipidemic, astringent, diuretic, spasmolytic, antipyretic, antiphlogistic,

analgetic, sedative, anxiolytic, muscle relaxing, anti-ulcerogenic, expectorant effects. (See analysis of the components).

Analysis of the Component Actions

In Crataegus & Geranium Combination (Cardioalliance) are included next herbs:

Folium Crataegus monogyna	/ Common Hawthorn flower /
Herba Equisetum arvense	/ Horsetail stalks /
Radix Geranium macrorrhizum	/ Bloody Cranesbill root /
Rhizoma Urtica dioica	/ Nettle root /
Cortex Salix alba	/ Willow bark /
Fruit Cynosbati	/ Roseship fruit /
Herba Asperula odorata	/ Sweet White Woodruff stalk /
Herba Agrimonia eupatoria	/ Church Steeples stalks /
Rhizoma Valeriana officinalis	/ Garden Valerian root /
Radix Inula helenium	/ Horse-heel root /

Folium Crataegus monogyna / Common Hawthorn flower / [1,2]

Compounds: Flavonoids, oligomeric proanthocyanins, biogenic amines (including tyramine), triterpenes, acetylcholine, choline, quercetin, etheric oil, amygdalin.

Effects: Positive inotropic, dromotropic and chronotropic effects, increased coronary and myocardial circulatory perfusion, antiarrhythmic, reduced peripheral vascular resistance, sedative, anti-inflammatory, antimicrobial, antiviral, decrease capillary fragility, inhibition of platelet aggregation, prevent

collagen destruction of joints, antioxidant, antimutagenic, antihyperlipidemic effects.

Indications: Congestive heart failure, stenocardia, hypertonia, atherosclerosis, hyperlipidemia, anxiety disorders, insomnia, vertigo, hyperthyroidism.

Cautions and adverse effects: With the proper administration no health problem or intoxications are known. Overdosed adverse effects – palpitation, dizziness, headache, vertigo, gastrointestinal complaints, flatulence. Drug interactions – Antiplatelet agents (bleeding), cardiac glycosides (synergistic effect), antiarrhythmics (similar action as Class III antiarrhythmics). Contraindicated in the pregnancy and children under 12 years old.

Daily dosage: to 5 g

Herba Equisetum arvense / Horsetail stalks / [1,2]

Compounds: Flavonoids, caffeic acid ester, salic acid, pyridine alkaloids, Vit A, Vit C.

Effects: Astringent, diuretic, spasmolytic, reduce uric acid effects.

Indications: Atherosclerosis, hypertonia, infections of the skin and urinary tract, nephrolithiasis, wounds, burns, skin ulcers, loss of hair, post-traumatic and static edema, fractures, frostbite, metrorrhagia, pulmonary and gastrointestinal hemorrhages, gout, rheumatic diseases, tuberculosis.

Cautions and adverse effects: No adverse effects with the administration of therapeutic doses.

Daily dosage: to 6 g daily

Radix Geranium sanguineous / Bloody Cranesbill roots/ [1,2]

Compounds: Tannins (10 to 28 %): gallotannins; etheric oil (p-cemol, borneol, curcumin, α -elemen, β -elemenon, γ -selimen), organic acids, Vit C

Effects: Astringent, hemostatic and tonic properties.

Indications: metrorrhagia, dysmenorrhea, sterility, nephrolithiasis, anemia, duodenal ulcers, enterocolitis, diarrhea, hemorrhoids, cirrhosis.

Cautions and adverse effects: With the proper administration no health problem or intoxications are known. Some patients with the sensitive stomach can have the digestive disorders (tannins) – nausea and vomiting.

Daily dosage: 1 to 2 g drug, 3 times daily, in decoction

Rhizoma Urtica dioica / Nettle root / [1,2]

Compounds: Histamine, serotonin, acetylcholine, formic acid, leukotrienes, flavonoids, silicic acid, volatile oil, potassium-ions.

Effects: Hemostatic, hemopoietic, anti-inflammatory, analgetic, anti-arthritic effects.

Indications: Urticaria, acne, skin and membranes itching, alopecia, metrorrhagia, infections of the urinary tract, kidney and bladder stones, pulmonal and gastric hemorrhages, hemorrhoid, decreased lactation, rheumatism.

Cautions and adverse effects: No adverse effects with the administration of therapeutic doses. Not to be used during pregnancy. Gastric irritation. Has to be separated 1-2 hours from the iron medications.

Daily dosage: 8 to 12 g

Cortex Salix alba / Willow bark / [1]

Compounds: Glycosides and esters yielding salicylic acid, tannins, flavonoids.

Effects: antipyretic, antiphlogistic, analgetic, anti-inflammation, astringent effects.

Indications: Rheumatism, rheumatoid myocarditis and mitral valve insufficiency, fever, toothache, gout, wound healing.

Cautions and adverse effects: No adverse effects with the administration of therapeutic doses. Contraindicated in the active gastric or duodenal ulcers, hemophilia, pregnancy and nursing mothers. Potential interactions with the salicylates and other nonsteroidal anti-inflammatory drugs, alcohol and barbiturates.

Daily dosage: 6 to 12 g.

Fruit Rosa canina / Roseship fruit / [1,2]

Compounds: Fatty oil, tocopherol, volatile oil, protein substances, etheric oil, tannins.

Effects: Diuretic, laxative, spasmolytic, antibacterial, astringent, hemostatic effect.

Indications: Rheumatism, gout, scurvy, nephrolithiasis, common cold, fever, cholecystitis, cholelithiasis, gastroenteritis, constipation, intestinal parasites, headache, dizziness.

Cautions and adverse effects: No adverse effects with the administration of therapeutic doses.

Daily dosage: 2 g

Herba Asperula odorata / Sweet White Woodruff stalk / [1,2]

Compounds: O-hydroxycinnamic acid glucoside, coumarin, iridoids, asperulosid, tannins, etheric oil, Vit C.

Effects: Antiphlogistic, antiedematic, spasmolytic, lymphokinetic, antimicrobial effects.

Indications: Circulatory and venous disorders, tachycardia, anxiety, hysteria, insomnia, epilepsy, hepatitis, cholelithiasis, enteritis, hemorrhoids.

Cautions and adverse effects: No adverse effects with the administration of therapeutic doses.

Daily dosage: 1g.

Herba Agrimonia eupatoria / Church Steeples stalks / [1,2]

Compounds: Catechin tannins, etheric oil, flavonoids, silicates, Vit K, Vit C, nicotinic acid.

Effects: Astringent, antiedema, hemostatic, antibacterial.

Indications: Liver and gall bladder disorders, diarrhea, inflammation of the skin and mouth, inflammation of the kidneys and bladder, enuresis, acne, psoriasis, eczema.

Cautions and adverse effects: No adverse effects with the administration of therapeutic doses.

Daily dosage: 3 to 6 g

Rhizoma Valeriana officinalis / Garden Valerian root /

Compounds: Iridoids, volatile oil, sesquiterpenes, pyridine alkaloids, caffeic acid derivatives

Effects: Depressive, sedative, anxiolytic, spasmolytic, muscle relaxing, anti-ulcerogenic effects.

Indications: Nervous cardiopathy, anxiety disorders, sleep disturbances, stress, epilepsy, hysteria, climax and premenstrual

agitation, nervous stomach cramps, colic, uterine spasticity.

Cautions and adverse effects: No adverse effects with the administration of therapeutic doses. Contraindicated in the hepatotoxicity, pregnancy, and nursing mothers. Potential interactions with the benzodiazepines, alcohol, iron, loperamide, opioid analgesics and barbiturates.

Daily dosage: 100 mg to 1.8 g

Radix Inula helenium / Horse-heel root / [1,2]

Compounds: Volatile oil, polyynes, polysaccharides.

Effects: Antimicrobial, antifungal, anthelmintic, antitumoral, mild antiseptic and expectorant effects.

Indications: Pulmonary and urinary tract infections, worm infection.

Cautions and adverse effects: No adverse effects with the administration of therapeutic doses. Not to be used during pregnancy. Overdosage – vomiting, diarrhea, spasms.

Daily dosage: 1 g

Cautions and Contraindications: With the proper administration no health problem or intoxications are known. Contraindicated in the pregnancy and nursing mothers.

Daily dosage: 1 to 2 capsules

Chemical Analysis

The Crataegus & Geranium Combination (Cardioalliance) had a chemical and antibacterial analysis in the Technology Center of the Plovdiv University “Paisii Hilendarski” EOOD, Bulgaria, by prof. Iliia Iliev

Methods of Analysis

Determination of the total polyphenolic content by the method of Singleton and Rossi

Determination of the total flavonoid content by spectrophotometric method with AlCl₃ (Aluminium chloride)

Quantification of condensed tannins using the methyl cellulose precipitation method

Quantification of polyphenolic substances, representatives of the group of phenolic acids, flavonoids and tannins using the HPLC method (High-performance liquid chromatography)

Quantification of arbutin according to the European Pharmacopeia 10.0

Determination of antioxidant activity using the DPPH method
LC-Mass Spectrometry analysis

The chemical analysis of the Crataegus & Geranium Combination (Cardioalliance) shows the existing of the many useful chemical substances. The chemical substances with the highest concentration are grouped according to their physiological effects:

Effects of the Isolated Chemical Substances

□ **Antioxidant** - verified with antioxidant analyze (TPC –total polyphenol content, mg GAE/g – equivalent of gallic acid: 139.9; IC₅₀ DPPH mg GAE/g 15 min: 14.4; EC₅₀ CUPAC mg GAC/g: 15.9; EC₅₀ FRAP mg GAC/g: 4.6); Gallic acid;

Caffeic acid; P-coumaric acid; Trans-ferulic acid; Syringic acid; Quercetin; Kaempferol; Isorhamnetin; Rutin; Catechin; Arbutin; Aucubin; Catalpol

- **Antibacterial** – Gallic acid (Campylobacter, Escherichia coli, Listeria monocytogenes, and Staphylococcus aureus, Streptococcus mutans, Pseudomonas); Chlorogenic acid; Trans-ferulic acid; Syringic acid; Quercetin (Pseudomonas aeruginosa, Salmonella enteritidis, Staphylococcus aureus, Escherichia coli, Proteus, and Aspergillus flavus, Candida albicans and antiparasitic properties Leishmania, Trypanosoma, and Plasmodium); Isorhamnetin (Influenza virus, Staphylococcus aureus, Escherichia coli, Klebsiella pneumoniae, Proteus, Staphylococcus aureus and Bacillus, Mycobacterium tuberculosis); Rutin; Aucubin (Gram positive bacteria (Staphylococcus epidermidis, S. aureus, Enterococcus faecalis, and Bacillus subtilis) and Gram negative bacteria (Proteus vulgaris, Enterobacter aerogenes, Klebsiella pneumoniae, Proteus mirabilis, and Citrobacter diverse); Candida albicans).
- **Cardioprotective** – Isorhamnetin (Anti-atherosclerosis, Prevention of myocardial hypertrophy, Decrease angiotensin II induced cardiomyocyte hypertrophy, Myocardial protection - Inhibiting apoptosis, Inhibition of vascular smooth muscle proliferation and collagen synthesis, Endothelial protection, Anti-myocardial ischemia, Anti-myocardial fibrosis); Chlorogenic acid; Caffeic acid; P-coumaric acid (antiplatelet); Trans-ferulic acid (thrombolytic); Syringic acid; Quercetin; Myricetin; Kaempferol; Rutin; Catechin; Aucubin (suppressing oxidative stress during cardiac remodeling and inhibiting cardiac hypertrophy due to excess pressure, hypertrophy, fibrosis, and inflammation); Catalpol
- **Hypotensive** - Isorhamnetin; Chlorogenic acid; Trans-ferulic acid; Quercetin; Myricetin
- **Antimutagenic** – Isorhamnetin, Chlorogenic acid; P-coumaric acid; Trans-ferulic acid; Syringic acid; Quercetin; Myricetin; Kaempferol; Rutin; Catechin; Aucubin; Catalpol
- **Antihyperlipidemic** - Isorhamnetin; Chlorogenic acid; Caffeic acid; Quercetin; Myricetin; Kaempferol; Rutin; Aucubin; Catalpol
- **Astringent** – Quercetin; Rutin
- **Diuretic** – Quercetin; Rutin
- **Spasmolytic** - Isorhamnetin; Trans-ferulic acid; Quercetin; Myricetin; Rutin; Catalpol
- **Antipyretic** - P-coumaric acid; Quercetin; Myricetin; Kaempferol; Isorhamnetin
- **Antiphlogistic** - P-coumaric acid; Quercetin; Myricetin; Kaempferol; Isorhamnetin
- **Analgetic** - Salicylic acid; Rutin; Catalpol
- **Sedative** - Chlorogenic acid; Caffeic acid; Rutin; Catalpol
- **Anxiolytic** - Gallic acid; Chlorogenic acid; Caffeic acid; Rutin; Aucubin; Catalpol
- **Muscle relaxing** - Isorhamnetin; Rutin; Catalpol
- **Anti-ulcerogenic** - P-coumaric acid; Quercetin; Rutin; Aucubin;
- **Lung protective** – Isorhamnetin (Anti-pulmonary fibrosis); Rutin (Antiasthmatic activity); Catalpol

Clinic Research

Methods and Methodology

For the medical statistical analysis were used 87 patients with the heart insufficiency (45 women, 42 men), from 21 to 91 years old. The period of taking Crataegus & Geranium Combination (Cardioalliance) was from 3 months to 1 year. The daily dose was 1 to 2 capsules. All patient were with verification from the cardiologist diagnosis – heart insufficiency. The patients had the heart functional test, ECG, and blood exam. Every 3 or 6 months they had the control cardiology exams. The patients did not change the prescribed medications, from their primary physicians.

Results

From 87 patient included in the research, 81 patients have improved their heart condition, with decreasing at the clinical pathologic symptoms (sternal and heart region pain – 79 fully and 2 decreased pains ($p < 0.3$); shortness of the breath – 81 fully compensated ($p < 0.3$); arrhythmia (supraventricular type, tachycardia, PVC) – 60 fully compensated and 21 less arrhythmia ($p < 0.3$); weakness at the physical activity – 81 patients are improved ($p < 0.3$);

and 6 patients had no response to the therapy. No side effects were registered – rushes, gastrointestinal complaints, headache, dizziness, and vertigo.

Analysis

The Crataegus & Geranium Combination (Cardioalliance) has 93.1 % effectivity to help in compensating the clinical pathologic symptoms of the patients with the heart insufficiency. Supporting 90.8 % of the patients to relieve the sternal and heart region pain. Help in 93.1 % of the patients to alleviate the shortness of breath and 68.9 % fully and 24.1 % partially compensated arrhythmia. Supporting 93.1 % of the patients to decrease weakness at the physical activity.

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