

Echinacea

Herb Name¹

Echinacea

Scientific Names¹

Echinacea angustifolia

Echinacea pallida

Echinacea purpurea

Common Names¹

American Cone Flower

Black Susans

Black Sampson

Brauneria Angustifolia

Brauneria Pallida

Comb Flower

Coneflower

Hedgehog

Igelkopfwurzel

Indian Head

Kansas Snakeroot

Narrow-leaved Purple Cone Flower

Niggerhead

Purple Cone Flower

Racine d' Echinacea

Red Sunflower

Rock-Up Hat

Rudbeckia

Scurvy Root

Snakeroot

Sonnenhutwurzel

Active Ingredients^{2,3}

Alkamides: -Includes undeca-2E, 4Z-dien-8, 10-diin acid- and dodeca-2E, 4E-8Z, 10E/Z- tetraen acid isobutylamide

Caffeic

Acid

Derivatives: -Cichoriic acid, chlorogenic acid, isochlorogenic acid, verbascoside, echinacoside

Polysaccharide: -Two types including a heteroxylan of average molecular mass of about 35, 000 & an arabinorhamnogalactan of an average molecular mass of about 45,000.

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Mechanism of Action^{2,3}

Immunostimulant Effect: -Activation of phagocytosis and stimulation of fibroblasts
-Increases respiratory activity.
-Increases mobility of leukocytes.

Anti-inflammatory Effect: -Inhibition of cyclooxygenase and 5-lipoxygenase
(*Echinacea angustifolia*)

Cytokine Stimulation: -Activation of macrophage cytotoxic actions against tumor cells and microorganisms.
-Induction of macrophages to produce tumor necrosis factor, interleukin-1, interleukin -6, interleukin-10, and interferon-beta.
-Induction of slight increase in T-cell proliferation.

Wound healing:-Inhibition of tissue and bacterial hyaluronidase is thought to localize the infection and prevent the spread of causative agents to other body parts.
-Increase fibroblast activity to stimulate the production of new tissue.
-Stimulation of blood and tissue- produced phagocytosis.

Current Indications & Efficacy^{4,5}

Common Indications: Common Cold

Other Indications: Wounds and Burns
Urinary Tract Infections
Tendency to infection
Inflammation of mouth and pharynx

Efficacy for Common Cold: A randomized, placebo-controlled, double- blinded clinical trial was done to determine the effects of Echinacea on the common cold in regards to time taken to improvement and the number of patients who develop fully expressed common cold. The primary outcomes of the study were duration of illness in patients with complete picture of common cold and number of patients who develop a complete picture of common cold. Complete picture of common cold was defined as the following; Jackson score of 5 (0= no symptoms, 5= severe symptoms) plus rhinorrhea for 3 consecutive days and/or subjective sensation of having a cold reported by the patient. The treatment protocols were: EC31J0 (pressed juice from fresh flowering purple coneflower) 5ml BID for 10 days and Placebo BID for 10 days.

Results- Eighty patients were enrolled in the study between May 1998-April 1999. Inclusion criteria included males/ females with upper respiratory tract infection plus at least one of these symptoms (sneezing, rhinorrhea, nasal congestion, sore throat, cough, headache, chills, malaise) within 24 hours before the trial . They excluded patients who had the following; acute respiratory tract infection within 1 week preceding the trial, allergy to composites, progressive systemic diseases (eg, TB, leucosis, AIDS, HIV, multiple sclerosis), pregnancy/ lactation, immunosuppressive treatment within 1 week prior to or during the trial, zinc or antibiotics within 2 weeks before the trial, immunostimulant treatment (herbal immunostimulants, cytokines, thymus fraction). The percentage of patients who developed a complete picture of common cold while taking Echinacea versus placebo were Echinacea (85.4%) and placebo (97.4%). These results were not significant (p=0.062). However, the duration of illness in patient with complete picture of common cold was less in Echinacea group (6 days) versus the placebo group (9 days). This was difference between the groups was statistically significant (p=0.0112). In conclusion, 5ml of pressed juice from the fresh flowering purple coneflower (Echinacea) BID is efficacious in reducing the duration of illness in patients with full blown common cold symptoms (rhinorrhea, nasal congestion, sore throat) when taken within the first 24 hours of symptoms.

Another randomized, placebo-controlled, double-blinded, multi-center study was done to verify clinical efficacy of phytomedicine in treatment of the common cold. The primary outcome was total efficacy which was evaluated according to O'Brien score (rhinitis score, bronchitis score). Rhinitis score measures (nasal congestion, runny nose, sniffing, frequency of sneezing) and bronchitis score measures (hoarseness, expectoration, chest pain, SOB). The symptoms were documented by the patients on a 10-point scale (0= no symptoms, 1-3= mild symptoms, 4-6= moderate symptoms, 7-10= severe symptoms). The treatment groups included the following: **Esberitox** (7.5mg purpurea + pallidae [1:1]) 3 tablets TID for 7-9 days, and at least until the final visit to investigator and the **placebo** group. The study included males/ females, 18-70 years of age who were suffering from an acute common cold at the time of attending their family physician. They excluded

patients with the following characteristics: acute influenza, chronic diseases of respiratory tract, fever (>38.5 C), organ transplantation, > 1 respiratory tract infections lasting longer than 3 weeks during the previous year, progressive systemic disease (TB, HIV, multiple sclerosis), inflammatory GI disease, immunosuppressive therapy, antibiotic treatment during the 7 days before baseline and during the study. Results of the study: Echinacea group was significantly better than the placebo group for primary efficacy (0.0497). Time to response was reduced in the Echinacea group versus the placebo group. On day 3, Echinacea group showed a 18% response while placebo group showed zero response. On day 5, Echinacea group showed 55.4% response whereas the placebo group only had 27.7% response. The reduction was statistically significant ($p=0.022$). In conclusion, Esberitox (7.5mg purpurea + pallida) is efficacious in the treatment of common cold.

Wounds and burns: Efficacy information not found.

Urinary Tract Infect: Efficacy information not found.

Tendency to infection: Efficacy information not found.

Inflammation of mouth: Efficacy information not found.
and pharynx

Contraindications & Allergies^{1-3,6,7}

Contraindications: -Tuberculosis
-Leukosis
-Collagenosis
-Multiple Sclerosis
-AIDS
-HIV
-Autoimmune disorders

Allergy: -Individuals with a known allergy to members of the Asteraceae plant family.
-The members include marigold, daisies, ragweed, & chrysanthemums.

Dosage Forms, Recommended Doses, Duration^{1,3,6}

Dosage Forms: -Powdered aerial part, pressed juice preparations used internally or externally.

Oral Admin: -1 gram of dried root three times daily or 1 cup of tea (1gram root in 150ml of boiling water) three times daily.
-0.25ml to 1ml of liquid extract three times daily.
-1 to 2ml of tincture three times daily.

Duration: -Treatment should not exceed 8 weeks.

Drug Interactions^{1,7,8}

Corticosteroids → (moderate interaction) Echinacea may stimulate the immune system (↑ granulocytes, monocytes, lymphocytes, phagocytic activity, natural killer cell function)= ↓ efficacy of corticosteroid.

Cyclosporine → (moderate interaction) Echinacea may stimulate the immune system (↑ granulocytes, monocytes, lymphocytes, phagocytic activity, natural killer cell function)= ↓ efficacy of cyclosporine.

Mycophenolate → (moderate interaction) Echinacea may stimulate the immune system (↑ granulocytes, monocytes, lymphocytes, phagocytic activity, natural killer cell function)= ↓ efficacy of mycophenolate.

Daclizumab → (moderate interaction) Echinacea may stimulate the immune system (↑ granulocytes, monocytes, lymphocytes, phagocytic activity, natural killer cell function)= ↓ efficacy of daclizumab.

Basiliximab → (moderate interaction) Echinacea may stimulate the immune system (↑ granulocytes, monocytes, lymphocytes, phagocytic activity, natural killer cell function)= ↓ efficacy of basiliximab.

Azathioprine → (moderate interaction) Echinacea may stimulate the immune system (↑ granulocytes, monocytes, lymphocytes, phagocytic activity, natural killer cell function)= ↓ efficacy of azathioprine.

Safety Issues³

Precautions: -Not recommended in pregnancy (*un-reliable studies on this topic*).
-Not recommended in nursing mothers (*un-reliable studies on this topic*).
-Not recommended in small children, except on advice of a physician.

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