

# Hibiscus

*Latin Name: Hibiscus spp.*

Lower BLOOD PRESSURE; COOLING

Use CALYX (structure around petals); also: Leaves; Seeds; Flowers

Native to North AFRICA and Southeast ASIA

## HISTORY

- 1) Egypt and Sudan: REFRIGERANT (lowers body temperature); Heart and Nerve diseases; Diuretic
- 2) Africa: COUGH; Sore THROAT; Genital problems; External Wounds and abscesses
- 3) Iran: HYPERTENSION

## QUALITIES

- 1) Lowers BLOOD PRESSURE
    - STUDY (blood pressure): A randomized, controlled, and double-blind clinical trial ... treatment decreased blood pressure (BP) with a therapeutic effectiveness of 65.12 % as well as tolerability and safety of 100 %. BP reductions and therapeutic effectiveness were lower than those obtained with Lisinopril medication. (Herrera-Arellano 2007)
  - 2) Lowers Glucose and Cholesterol levels
    - STUDY (lower glucose; lower cholesterol/ lipids): Patients with metabolic syndrome in a randomized trial... those treated “had significantly reduced glucose and total cholesterol levels, increased HDL levels, and an improved cholesterol/lipid ratio. A triglyceride-lowering effect was also observed.” (Gurrola-Díaz 2010)
  - 3) COOLING Effect
  - 4) OTHER:
    - COLDS; Upper Respiratory Tract; Dissolves Phlegm
    - Circulation
    - Antispasmodic (seeds); Nervine
    - Improves Appetite; Stomachache; Gentle Laxative; Diuretic
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# Hibiscus References

## Herb History and General Information

*The Complete German Commission E Monographs, Therapeutic Guide to Herbal Medicine*, Austin, TX: American Botanical Council; 1999

Engels, Gayle, Hibiscus Herb Profile. Herbalgram. 2007; 74: 1-6

Grieve, M., *A Modern Herbal, Vol I & II*. New York and London: Hafner Publishing Co.; 1967. See excerpts at [www.botanical.com](http://www.botanical.com) accessed December 16, 2014

## Studies

Gurrola-Díaz CM, García-López PM, Sánchez-Enríquez S, Troyo-Sanromán R, Andrade-González I, Gómez-Leyva JF. Effects of Hibiscus sabdariffa extract powder and preventive treatment (diet) on the lipid profiles of patients with metabolic syndrome (MeSy). *Phytomedicine*. 2010 Jun;17(7):500-5. doi: 10.1016/j.phymed.2009.10.014. Epub 2009 Dec 3. [PubMed]

Herrera-Arellano A1, Miranda-Sánchez J, Avila-Castro P, Herrera-Alvarez S, Jiménez-Ferrer JE, Zamilpa A, Román-Ramos R, Ponce-Monter H, Tortoriello J. Clinical effects produced by a standardized herbal medicinal product of Hibiscus sabdariffa on patients with hypertension. A randomized, double-blind, lisinopril-controlled clinical trial. *Planta Med*. 2007 Jan;73(1):6-12. [PubMed]

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## Additional info on Studies:

### LOWERS GLUCOSE and CHOLESTEROL

In a randomized trial, patients with metabolic syndrome treated with a Hibiscus sabdariffa extract powder had significantly reduced glucose and total cholesterol levels, increased HDL-c levels, and an improved TAG/HDL-c ratio (t-test  $p < 0.05$ ). A triglyceride-lowering effect was also observed. Gurrola-Díaz 2010

Insulin resistance, obesity, hypertension, and dyslipidemia are strongly associated with metabolic syndrome (MeSy), which is considered to be a reversible clinical stage before its evolution to coronary heart disease and diabetes. Currently, the antihypertensive and hypolipidemic properties of aqueous Hibiscus sabdariffa extracts (HSE) have been demonstrated in clinical trials and in vivo experiments. The aim of the present study was to evaluate the effects of a Hibiscus sabdariffa extract powder (HSEP) and a recognized preventive treatment (diet) on the lipid profiles of individuals

with and without MeSy according to the National Cholesterol Education Program Adult Treatment Panel III (NCEP-ATP III) criteria.

The protocol was a follow-up study carried out in a factorial, randomized design (T1=preventive treatment comprises Diet, T2=HSEP, T3=HSEP+preventive treatment (Diet) X MeSy, non-MeSy individuals).

A total daily dose of 100 mg HSEP was orally administered in capsules for one month. The preventive treatment (diet) was selected according to NCEP-ATP III recommendations and adjusted individually. Total cholesterol, LDL-c, HDL-c, VLDL-c, triglycerides, glucose, urea, creatinine, AST, and ALT levels in the blood were determined in all individuals pre- and post-treatment.

The MeSy patients treated with HSEP had significantly reduced glucose and total cholesterol levels, increased HDL-c levels, and an improved TAG/HDL-c ratio, a marker of insulin resistance (t-test  $p < 0.05$ ). Additionally, a triglyceride-lowering effect was observed in MeSy patients treated with HSEP plus diet, and in individuals without MeSy treated with HSEP. Significant differences in total cholesterol, HDL-c, and the TAG/HDL-c ratio were found when the means of absolute differences among treatments were compared (ANOVA  $p < 0.02$ ). Therefore, in addition to the well documented hypotensive effects of Hibiscus sabdariffa, we suggest the use of HSEP in individuals with dyslipidemia associated with MeSy.

## BLOOD PRESSURE

A randomized, controlled, and double-blind clinical trial was conducted with dried extract of Hibiscus sabdariffa calyxes which exerted an important antihypertensive effect with a wide margin of tolerability and safety, while it also significantly reduced plasma ACE activity. Herrera-Arellano 2007

Hibiscus sabdariffa L. (Malvaceae) has been used in different countries as an antihypertensive. Pharmacological work has demonstrated that this effect is probably produced by a diuretic activity and inhibition of the angiotensin-converting enzyme (ACE). Two clinical trials have confirmed the antihypertensive effect using watery infusions, in which a natriuretic effect was also detected. To compare therapeutic effectiveness, tolerability, and safety, as well as the effect on serum electrolytes and the ACE inhibitory effect of a herbal medicinal product prepared from the dried extract of H. sabdariffa calyxes (HsHMP) with those of lisinopril on patients with hypertension (HT), a randomized, controlled, and double-blind clinical trial was conducted.

Patients of either sex, 25 - 61 years of age, with hypertension stage I or II, were daily treated for 4 weeks with the HsHMP, 250 mg of total anthocyanins per dose (experimental group), or 10 mg of lisinopril (control group). Outcome variables included effectiveness (diastolic blood pressure [DBP] reduction,  $\geq 10$  mmHg), safety (absence of pathological modifications in the biochemical tests of hepatic and renal function), tolerability (absence of intense side effects), effect on serum electrolytes, and effect on ACE activity. Basal analysis included 193 subjects (100 in the experimental group), while outcome variable analysis integrated 171.

Results showed that the experimental treatment decreased blood pressure (BP) from 146.48/97.77 to 129.89/85.96 mmHg, reaching an absolute reduction of 17.14/11.97 mmHg (11.58/12.21%,  $p < 0.05$ ). The experimental treatment showed therapeutic

effectiveness of 65.12 % as well as tolerability and safety of 100 %. BP reductions and therapeutic effectiveness were lower than those obtained with lisinopril ( $p < 0.05$ ). Under the experimental treatment, the serum chlorine level increased from 91.71 to 95.13 mmol/L ( $p = 0.0001$ ), the sodium level showed a tendency to decrease (from 139.09 to 137.35,  $p = 0.07$ ), while potassium level was not modified. ACE plasmatic activity was inhibited by HsHMP from 44.049 to 30.1 Units (Us;  $p = 0.0001$ ).

In conclusion, the HsHMP exerted important antihypertensive effectiveness with a wide margin of tolerability and safety, while it also significantly reduced plasma ACE activity and demonstrated a tendency to reduce serum sodium (Na) concentrations without modifying potassium (K) levels. Further studies are necessary for evaluating the dose-dependency of HsHMP and for detecting lower effective doses.