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- FasTrak
- Hibiscus (*Hibiscus subdariffa*)
- Hypertension
- Lisinopril

Date: February 28, 2007

HC# 020571-323

Re: Study Finds Hibiscus Extract May Help Control Hypertension

Herrera-Arellano A, Miranda-Sanchez J, Avila-Castro P, et al. Clinical effects produced by a standardized herbal medicinal product of *Hibiscus sabdariffa* on patients with hypertension. A randomized, double-blind, lisinopril-controlled trial *Planta Med.* 2007;73:6-12.

Hibiscus (*Hibiscus sabdariffa*), commonly known as jamaica or flor de jamaica in Mexico, is used in drinks and as medicine. The active constituents are anthocyanins, which have antioxidative, antitumor, and anticarcinogenic activity. Studies indicate that hibiscus also acts on the cardiovascular system. It has been shown to have a natriuretic effect (eliminates extra sodium) and can inhibit angiotensin-converting enzyme (ACE) (which causes an elevation of blood pressure). **The purpose of this study was to evaluate the efficacy and safety of an herbal medicinal product prepared from hibiscus extract and to compare it with lisinopril, an ACE inhibitor used to treat hypertension.**

Outpatients (n=193) of the Regional General Hospital No 1 (HGR 1) of the Mexican Institute of Social Security (IMSS) in Cuernavaca, Morelos, Mexico with stage 1 or 2 hypertension participated in this randomized, controlled, double-blind study. Patients received either lisinopril 10 mg/day or hibiscus dried calyx extract standardized to 250 mg of total anthocyanins per day for 4 weeks (the authors performed the extraction). Blood pressure and urine were monitored.

At baseline, there were no significant differences in blood pressure between groups. Both treatments reduced blood pressure, but the effects were not immediately evident. **After 4 weeks of treatment, the hibiscus extract lowered the systolic blood pressure by 11.58% and diastolic blood pressure by 12.21%.** Lisinopril had a greater effect, lowering systolic blood pressure by 15.79% and diastolic blood pressure by 15.68%. Both treatments were well tolerated. Two cases of nervousness were reported in the hibiscus extract-treated patients. Patients treated with hibiscus extract had a significant increase in serum chloride, a decrease in plasma sodium, and no effect on the potassium level. In contrast, lisinopril only caused a significant decrease in plasma chloride levels. The ACE inhibitory effect was significantly higher in the lisinopril-treated patients (P<00.004).

This confirms previous findings that hibiscus increases sodium excretion without modifying potassium. The authors conclude that **hibiscus extract has two of the properties of commonly prescribed antihypertension drugs; namely, ACE inhibition and diuretic actions.** This study would be even more convincing if there were a placebo-control group in addition to the positive control group. Dose-response studies are needed.

—Heather S. Oliff, PhD

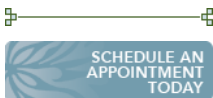
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Hibiscus Tea to Lower Your Blood Pressure

People with high blood pressure (hypertension) can lower their blood pressure by drinking a tea made from a standardized extract of hibiscus flower every day, according to a study published in *Phytomedicine* (2004;11:375–82). The World Health Organization defines hypertension as blood pressure higher than 140/90. It is a common condition in the developed world, affecting approximately 20% of adults. Though people with hypertension usually do not experience symptoms and often do not know their blood pressure is high, it can lead to serious health problems, including congestive heart failure and stroke. Eating a diet rich in fruits and vegetables, exercising, and practicing relaxation can all help to prevent or treat hypertension. Blood pressure–lowering (antihypertensive) drugs are often prescribed if these lifestyle changes do not sufficiently reduce blood pressure. These drugs work either by opening (dilating) the blood vessels or by increasing the volume of urine (in other words, a diuretic effect) and thereby reducing the volume of blood.

Hibiscus (*Hibiscus sabdariffa*) is a small tree with bright red flowers that are rich in flavonoids, minerals, and other nutrients. The flowers have a fruity taste that makes hibiscus popular as both hot and cold tea. Studies have demonstrated that they have a diuretic property and have also found mild

blood vessel–dilating effects. Several trials using hibiscus extracts have suggested that hibiscus can lower blood pressure in people with hypertension.

The current study evaluated 70 people with mild to moderate hypertension who were otherwise healthy and had not received treatment for at least one month before entering the trial. Participants were randomly assigned to drink one-half liter (approximately 16 ounces) of hibiscus tea before breakfast each day or to take 25 mg of an antihypertensive medication (captopril) twice a day for four weeks. The tea was made from a hibiscus extract standardized to contain a specified amount of flavonoids known as anthocyanins. Blood pressure was measured at the beginning of the study and weekly during the study. **After four weeks, the effectiveness of the two treatments was statistically similar: diastolic blood pressure (the lower number of a blood pressure reading) was reduced by at least ten points in 79% of the people receiving hibiscus and 84% of those receiving captopril.**

The results of this study demonstrate that a tea made from a standardized **hibiscus flower extract can reduce blood pressure in people with mild to moderate hypertension.** Hibiscus flowers might have several components and properties that contribute to its blood pressure–lowering effect. The antioxidants in hibiscus could add to its cardiovascular benefits by protecting blood vessels and heart muscle from oxidative damage. Furthermore, **its safety and low potential for causing negative side effects make hibiscus an attractive alternative to antihypertensive medications.**

Maureen Williams, ND, received her bachelor’s degree from the University of Pennsylvania and her Doctorate of Naturopathic Medicine from Bastyr University in Seattle, WA. She has a private practice in Quechee, VT, and does extensive work with traditional herbal medicine in Guatemala and Honduras. Dr. Williams is a regular contributor to Healthnotes Newswire.

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Journal of Human Hypertension 23, 48-54 (January 2009) |
doi:10.1038/jhh.2008.100

The effects of sour tea (Hibiscus sabdariffa) on hypertension in patients with type II diabetes
Sour tea for hypertension in diabetic patients

H Mozaffari-Khosravi, B-A Jalali-Khanabadi, M Afkhami-Ardekani, F Fatehi and M Noori-Shadkam

To compare the antihypertensive effectiveness of sour tea (ST; Hibiscus sabdariffa) with black tea (BT) infusion in diabetic patients, this double-blind randomized controlled trial was carried out. Sixty diabetic patients with mild hypertension, without taking antihypertensive or antihyperlipidaemic medicines, were recruited in the study. The patients were randomly allocated to the ST and BT groups and instructed to drink ST and BT infusions two times a day for 1 month. Their blood pressure

(BP) was measured on days 0, 15 and 30 of the study. The mean of systolic BP (SBP) in the ST group decreased from 134.4±11.8 mm Hg at the beginning of the study to 112.7±5.7 mm Hg after 1 month (P-value <0.001), whereas this measure changed from 118.6±14.9 to 127.3±8.7 mm Hg (P-value=0.002) in the BT group during the same period. The intervention had no statistically significant effect on the mean of diastolic BP (DBP) in either the ST or BT group. The mean pulse pressure (PP) of the patients in the ST group decreased from 52.2±12.2 to 34.5±9.3 mm Hg (P-value <0.001) during the study, whereas in the BT group, it increased from 41.9±11.7 to 47.3±9.6 mm Hg (P-value=0.01). In conclusion, consuming ST infusion had positive effects on BP in type II diabetic patients with mild hypertension. This study supports the results of similar studies in which antihypertensive effects have been shown for ST.

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Drinking hibiscus tea lowered blood pressure in pre-hypertensive and mildly hypertensive adults in a new study. *Photo courtesy of Celestial Seasonings.*

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Study Shows Consuming Hibiscus Tea Lowers Blood Pressure

By [Rosalie Marion Bliss](#)
November 10, 2008

Drinking hibiscus tea lowered blood pressure in a group of pre-hypertensive and mildly hypertensive adults, according to a report being presented today by nutrition scientist [Diane McKay](#) at the [American Heart Association's](#) annual conference in New Orleans, La. Hypertension is a condition in which blood pressure is chronically high, and it affects one-third of all U.S. adults.

McKay's research was funded by the [Agricultural Research Service](#) (ARS), a scientific research agency of the [U.S. Department of Agriculture](#) (USDA), and by Boulder, Colo.-based [Celestial Seasonings](#), a brand of [The Hain Celestial Group, Inc.](#) McKay works in the [Antioxidants Research Laboratory](#) of the [Jean Mayer USDA Human Nutrition Research Center on Aging](#) at [Tufts University](#) in Boston, Mass.

In a clinical trial, McKay tested 65 volunteers, aged 30 to 70 years, whose systolic blood pressure was 120 to 150 mm Hg and whose diastolic blood pressure was 95 mm Hg or less at the start of the study. Blood pressure readings of 120 over 80 or greater are considered a risk factor for heart disease, stroke and kidney disease.

For six weeks, about half the group was randomly selected to drink three cups of hibiscus tea daily. The others drank a placebo beverage containing artificial hibiscus flavoring and color. All participants were advised to follow their usual diet and maintain their normal level of activity. Before the start of the study, blood pressure was measured twice, one week apart, and at weekly intervals thereafter.

The findings show that the volunteers who drank hibiscus tea had a 7.2 point drop in their systolic blood pressure, compared to a 1.3 point drop in the volunteers who drank the placebo beverage.

In a subgroup analysis, 30 volunteers with the highest systolic blood pressure readings at the start of the study (129 or above) were found to have a greater response to hibiscus tea drinking compared to placebo drinkers. Their systolic blood pressure went down by 13.2 points, diastolic blood pressure went down by 6.4 points, and mean arterial pressure went down by 8.7 points.

This data supports the idea that drinking hibiscus tea in an amount readily incorporated into the diet may play a role in controlling blood pressure, although more research is required.

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J Nutr. 2010 Feb;140(2):298-303. doi: 10.3945/jn.109.115097. Epub 2009 Dec 16.

Hibiscus sabdariffa L. tea (tisane) lowers blood pressure in prehypertensive and mildly hypertensive adults.

McKay DL, Chen CY, Saltzman E, Blumberg JB.

Author information

Abstract

In vitro studies show Hibiscus sabdariffa L., an ingredient found in many herbal tea blends and other beverages, has antioxidant properties, and, in animal models, extracts of its calyces have demonstrated hypocholesterolemic and antihypertensive properties. Our objective in this study was to examine the antihypertensive effects of H. sabdariffa tisane (hibiscus tea) consumption in humans. A randomized, double-blind, placebo-controlled clinical trial was conducted in 65 pre- and mildly hypertensive adults, age 30-70 y, not taking blood pressure (BP)-lowering medications, with either 3 240-mL servings/d of brewed hibiscus tea or placebo beverage for 6 wk. A standardized method was used to measure BP at baseline and weekly intervals. **At 6 wk, hibiscus tea lowered systolic BP (SBP) compared with placebo** (-7.2 +/- 11.4 vs. -1.3 +/- 10.0 mm Hg; P = 0.030). Diastolic BP was also lower, although this change did not differ from placebo (-3.1 +/- 7.0 vs. -0.5 +/- 7.5 mm Hg; P = 0.160). The change in mean arterial pressure was of borderline significance compared with placebo (-4.5 +/- 7.7 vs. -0.8 +/- 7.4 mm Hg; P = 0.054). **Participants with higher SBP at baseline showed a greater response to hibiscus treatment** (r = -0.421 for SBP change; P = 0.010). No effects were observed with regard to age, gender, or dietary supplement use. These results suggest **daily consumption of hibiscus tea, in an amount readily incorporated into the diet, lowers BP in pre- and mildly hypertensive adults** and may prove an effective component of the dietary changes recommended for people with these conditions.

PMID: 20018807 [PubMed - indexed for MEDLINE] [Free full text](#)

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[Fitoterapia](#). 2013 Mar;85:84-94. doi: 10.1016/j.fitote.2013.01.003. Epub 2013 Jan 17.

Hibiscus sabdariffa L. in the treatment of hypertension and hyperlipidemia: a comprehensive review of animal and human studies.

[Hopkins AL](#), [Lamm MG](#), [Funk JL](#), [Ritenbaugh C](#).

Author information

Abstract

The effectiveness of *Hibiscus sabdariffa* L. (HS) in the treatment of risk factors associated with cardiovascular disease is assessed in this review by taking a comprehensive approach to interpreting the randomized clinical trial (RCT) results in the context of the available ethnomedical, phytochemical, pharmacological, and safety and toxicity information. HS decoctions and infusions of calyxes, and on occasion leaves, are used in at least 10 countries worldwide in the treatment of hypertension and hyperlipidemia with no reported adverse events or side effects. HS extracts have a low degree of toxicity with a LD50 ranging from 2,000 to over 5,000mg/kg/day. There is no evidence of hepatic or renal toxicity as the result of HS extract consumption, except for possible adverse hepatic effects at high doses. There is evidence that HS acts as a diuretic, however in most cases the extract did not significantly influence electrolyte levels. Animal studies have consistently shown that consumption of HS extract reduces blood pressure in a dose dependent manner. In RCTs, the daily consumption of a tea or extract produced from HS calyxes significantly lowered systolic blood pressure (SBP) and diastolic blood pressure (DBP) in adults with pre to moderate essential hypertension and type 2 diabetes. In addition, HS tea was as effective at lowering blood pressure as the commonly used blood pressure medication Captopril, but less effective than Lisinopril. Total cholesterol, low-density lipoprotein cholesterol (LDL-C), and triglycerides were lowered in the majority of normolipidemic, hyperlipidemic, and diabetic animal models, whereas high-density lipoprotein cholesterol (HDL-C) was generally not affected by the consumption of HS extract. Over half of the RCTs showed that daily consumption of HS tea or extracts had favorable influence on lipid profiles including reduced total cholesterol, LDL-C, triglycerides, as well as increased HDL-C. Anthocyanins found in abundance in HS calyxes are generally considered the phytochemicals responsible for the antihypertensive and hypocholesterolemic effects, however evidence has also been provided for the role of polyphenols and hibiscus acid. A number of potential mechanisms have been proposed to explain the hypotensive and anticholesterol effects, but the most common explanation is the antioxidant effects of the anthocyanins inhibition of LDL-C oxidation, which impedes atherosclerosis, an important cardiovascular risk factor. This comprehensive body of evidence suggests that extracts of HS are promising as a treatment of hypertension and hyperlipidemia, however more high quality animal and human studies informed by actual therapeutic practices are needed to provide recommendations for use that have the potential for widespread public health benefit.