



# HerbClip™

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**File: ■ Hibiscus (*Hibiscus sabdariffa*, Malvaceae)**  
**■ Sour Tea**  
**■ Dyslipidemia**

**HC 031838-601**

**Date: September 28, 2018**

**RE: Hibiscus (Sour Tea) Intake, Changes in Diet, and Physical Activity Help Regulate Lipids in Patients with Polygenic Dyslipidemia**

Hajifaraji M, Matlabi M, Ahmadzadeh-Sani F, et al. Effects of aqueous extracts of dried calyx of sour tea (*Hibiscus sabdariffa* L.) on polygenic dyslipidemia: A randomized clinical trial. *Avicenna J Phytomed.* January-February 2018;8(1):24-32.

Coronary heart disease (CHD) remains the leading cause of death globally, and one of the major risk factors for CHD is dyslipidemia. Treating dyslipidemia can decrease mortality risks by as much as 30%. According to prospective studies, certain dietary habits can significantly reduce the risk of heart disease. These include minimal intake of trans fats, high intakes of whole grains, fruits, and vegetables, and substituting unsaturated fats for refined carbohydrates and saturated fats. Sour tea made from the calyces of hibiscus (*Hibiscus sabdariffa*, Malvaceae) flower has also been shown to improve lipid profiles. These authors conducted a randomized, controlled trial to investigate the effect of sour tea on the lipid profiles of patients with polygenic or nonfamilial dyslipidemia (elevation of plasma cholesterol, triglycerides, or both).

Six men and 37 women aged 30 to 60 years were selected from the 22-Bahman Hospital in Gonabad, Iran in 2012. All the patients had polygenic dyslipidemia and were not using lipid-lowering drugs. They had no family history of dyslipidemia and met the following criteria: total cholesterol >200 mg/dL, low-density lipoprotein cholesterol (LDL-C) >180 mg/dL, and high-density lipoprotein cholesterol (HDL-C) <45 mg/dL for men and < 55 mg/dL for women. The participants reported no history of chronic diseases such as diabetes mellitus, cardiovascular disease, nephrotic syndrome, liver disease, or thyroid gland dysfunction. They did not smoke and did not follow any special diet.

The patients were randomly assigned to the sour tea group or the control group, with 25 in each group. They were instructed to follow healthy lifestyle modifications of their diet and physical activity. The participants drank either two cups of sour tea or two cups of black tea (*Camellia sinensis*, Theaceae) between meals for 12 weeks. To prepare the Dorsa sour tea (Mohammad Ismail Vakili Company; Gonabad, Iran), the patients added 2 grams of pulverized tea to 240 mL of boiling water and let it sit for 30 minutes at room temperature before drinking. Lipid profiles were assessed at baseline and after weeks six and 12 of the trial. During the first six weeks, three patients from the sour tea group and four patients from the control group were dropped from the study, and in week 12, one patient from each group was dropped. All dropouts were due to failure to follow up.

No significant baseline differences were observed between the groups in age, body mass index, duration of disease, levels of triglycerides (TG), HDL-C, or the LDL-C/HDL-C ratio ( $P>0.05$  for all). The control group was more physically active than the sour tea group ( $P=0.01$ ) and had lower levels of total cholesterol ( $P=0.04$ ) and LDL-C ( $P=0.04$ ) at baseline.

No significant baseline differences were seen in daily nutrient intake between the two groups; however, the daily intakes of carbohydrates, fat, and saturated fatty acids were higher than the recommended levels in the control group, and the daily intakes of carbohydrates, fat, saturated fatty acids, and cholesterol were higher than the recommended levels in the sour tea group. At the end of the study, a significantly higher intake of sweets was seen in the sour tea group compared with the control group ( $P=0.06$ ).

A repeated measures test revealed no significant between-group differences at the end of the study in total cholesterol ( $P=0.35$ ), TG ( $P=0.56$ ), LDL-C ( $P=0.29$ ), or LDL-C/HDL-C ratio ( $P=0.11$ ); however, HDL-C decreased significantly more in the sour tea group than in the control group ( $P<0.002$ ). Compared with baseline, significant reductions were seen in the sour tea group for total cholesterol ( $P=0.03$ ), LDL-C ( $P=0.03$ ), and HDL-C ( $P<0.001$ ). Nonsignificant reductions were seen in TG ( $P=0.31$ ) and LDL-C/HDL-C ( $P=0.39$ ) from baseline to the end of the study. In the control group, compared with baseline, the only significant change in lipid profiles was an increase in the LDL-C/HDL-C ratio ( $P=0.02$ ). "Some subjects did not completely adhere to the recommended healthy diet, which may explain why sour tea was not effective in all subjects," write the authors.

The major limitations of the study were the lack of an appropriate placebo and the baseline differences between the groups in total cholesterol and LDL-C. No significant adverse effects were reported. Several clinical trials and in vivo studies have reported a lipid-lowering effect of sour tea, probably because of its anthocyanins, a major component, and the antioxidant properties and soluble fiber content of the tea.

The authors conclude that "sour tea may have significant positive effects on lipid profile of subjects with polygenic dyslipidemia" and that "sour tea intake with recommended dietary patterns and physical activity can be useful in regulation of lipid profile in patients with polygenic dyslipidemia."

The authors report no conflicts of interest.

—*Shari Henson*

Referenced article can be accessed at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5787994/>.