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Effects of Hibiscus sabdariffa extract powder and preventive treatment (diet) on the lipid profiles of patients with metabolic syndrome (MeSy).

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Abstract

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.

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Clinical effects produced by a standardized herbal medicinal product of *Hibiscus sabdariffa* on patients with hypertension. A randomized, double-blind, lisinopril-controlled clinical trial.

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Abstract

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, ≥ 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.

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The effect of sour tea (*Hibiscus sabdariffa*) on essential hypertension.

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Abstract

Considering the high prevalence of hypertension, its debilitating end organ damage, and the side effects of chemical drugs used for its treatment, we conducted this experimental study to evaluate the effect of sour tea (*Hibiscus sabdariffa*) on essential hypertension. For this purpose, 31 and 23 patients with moderate essential hypertension were randomly assigned to an experimental and control group, respectively. Patients with secondary hypertension or those consuming more than two drugs were excluded from the study. Systolic and diastolic blood pressures were measured before and 15 days after the intervention. In the experimental group, 45% of the patients were male and 55% were female, and the mean age was 52.6 +/- 7.9 years. In the control group, 30% of the patients were male, 70% were female, and the mean age of the patients was 51.5 +/- 10.1 years. Statistical findings showed an 11.2% lowering of the systolic blood pressure and a 10.7% decrease of diastolic pressure in the experimental group 12 days after beginning the treatment, as compared with the first day. The difference between the systolic blood pressures of the two groups was significant, as was the difference of the diastolic pressures of the two groups. Three days after stopping the treatment, systolic blood pressure was elevated by 7.9%, and diastolic pressure was elevated by 5.6% in the experimental and control groups. This difference between the two groups was also significant. This study proves the public belief and the results of in vitro studies concerning the effects of sour tea on lowering high blood pressure. More extensive studies on this subject are needed.