

## Review Article

## Observational Study of Hibiscus Sabdariffa Tea on Blood Pressure: The Case of Nyarkotey Tea made with concentrated energized Hibiscus Sabdariffa

Raphael Nyarkotey Obu, RND, PhD

Nyarkotey College of Holistic Medicine, Tema C7, Ghana

**Article History**

Received: 03.07.2020

Accepted: 19.07.2020

Published: 29.07.2020

**Journal homepage:**<https://www.easpublisher.com/easjpp>**Quick Response Code**

**Abstract:** *Aim:* Hibiscus Sabdariffa Tea has received media publicity in recent times due to its ability to reduce blood pressure. The plant has been extensively researched as an alternative to help control high blood pressure, but yet, not much research had been conducted in Ghana on its antihypertensive properties. The objective of this study was to examine the antihypertensive effects of H. sabdariffa (hibiscus tea) with the brand name Nyarkotey Tea approved by the FDA in Ghana for cardiovascular Health and general wellbeing. *Method:* An observational study was conducted in one male hypertensive patient aged 33 years with systolic pressure 180 mmHg and diastolic pressure 120 mmHg but not taking any pharmaceutical hypertensive drug. He was monitored for a day with the dosage, two tea bags in 500 ml water boiled for 5 minutes three times. *Result:* After the third dosage, His blood pressure reading was monitored in the evening. His systolic pressure fell to 150 mmHg and diastolic reading also fell to 100 mmHg. His systolic pressure had 30 point reduction whilst his diastolic pressure had 20 point reduction. *Conclusion:* This is the first observational study in Ghana to suggest daily consumption of hibiscus tea, in a concentrated bioenergized form, lowers blood pressure level and may prove an effective component in cardiovascular health management.

**Keywords:** Nyarkotey Tea, Hibiscus Sabdariffa, Cardiovascular Health, daily consumption, well-being.

**Copyright © 2020 The Author(s):** This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

### INTRODUCTION

Hibiscus tea in Ghana is known as “Sobolo” and had received several reviews on its impact on hypertension and cardiovascular health in generality. It is now very common to see hibiscus tea in the health stores and part of the health drinks of Ghanaians.

A recent 2019 (Abubakar, S. M. *et al.*, 2019) study investigated the acute impact of Hibiscus sabdariffa calyces (HSC) extract consumption on blood pressure (BP), vascular function and other cardiometabolic risk markers concluded that, the extract of HSC improved postprandial vascular function and may be a useful dietary strategy to reduce endothelial dysfunction and CVD risk, although this requires confirmation.

A 2013 review by the University of Arizona found out that hibiscus tea is used in 10 or more countries as normal treatment for hypertension without any reported adverse events or side effects — except in extremely high doses. The study led these researchers to

state that “extracts of [hibiscus] are promising as a treatment of hypertension.” They did point out, however, that high-quality studies (known in the scientific community as the “gold standard”) are needed to see the specific interactions of hibiscus tea on high blood pressure (Allison, L. *et al.*, 2013).

Another 2010 study (McKay, D. L. *et al.*, 2010) 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. A similar meta-analysis of RCTs showed a significant effect of H. sabdariffa in lowering both SBP and DBP (Serban, C. *et al.*, 2015).

One significant study, this time in Nigeria proved that, hibiscus tea is more effective than hydrochlorothiazide, a common blood-pressure lowering medication, at decreasing blood pressure. The most significant finding was that hibiscus tea, unlike its

study counterpart, hydrochlorothiazide, did not cause electrolyte imbalance (Nwachukwu, D. C. *et al.*, 2015).

Hibiscus tea benefits go beyond blood pressure lowering. It could also help people with dyslipidemia cope with their cholesterol and high triglycerides level. These collective cardio disease risk factors are part of the greater cluster of symptoms known as metabolic syndrome, which could points to an elevated risk of diabetes and stroke. In one study published in *Phytomedicine*, the researchers recommend the use of hibiscus extracts to naturally lower cholesterol and triglyceride levels in patients with metabolic syndrome (Gurrola-Díaz, C. M. *et al.*, 2010).

Hibiscus tea's capability to decrease high "blood lipids" also spreads to those with diabetes. For instance, a 2009 study had diabetes patients consume hibiscus tea twice a day for a month and found a significant increase in HDL ("good") cholesterol and decrease in overall cholesterol, LDL ("bad") cholesterol and triglycerides (Mozaffari-Khosravi, H. *et al.*, 2009).

Hibiscus tea also act as a diuretic and it extends to the health of the renal system especially the kidneys. one animal testing suggests that hibiscus tea presents what is known as an "anti-urolithiatic property," which means, it may lower the occurrence of compounds that form kidney stones. The investigators finally concluded that, HS tea be introduced in clinical practices and medicine in the form of orally administered syrup after further investigations and clinical trials (Laikangbam, R., & Devi, M. D. 2012).

## METHODOLOGY

### Study Design

An observational study was conducted to study the effects of hibiscus tea with the brand name Nyarkotey Tea consumption on BP. The male patient aged 33yrs was made aware of the product and the treatment period. He was informed the purpose is to study the impact off the tea on his blood pressure for a day.

His pre systolic pressure was 180mmHg and diastolic pressure 120mmHg but not taking any pharmaceutical hypertensive drug.

### Herbal Product

The Hibiscus Sabdariffa tea were supplied by RNG Medicine Research Lab, Tema community 18, certified by the FDA for cardiovascular and general well-being. The dosage by the manufacturer reads two tea bags 3 × daily before or 30 minutes after meals. To be boiled in 500ml water for 5 minutes.

### Measurement of BP

The male hypertensive patient aged 33years had pre systolic pressure 180mmHg and diastolic pressure 120mmHg.

The systolic Blood Pressure and Diastolic Blood pressure were measured at the brachial artery by use of an automated BP device ( OMRON) to enable the investigator assess the potency of the tea and also to avoid patient own readings and subjectivity.

The first BP reading was measured prior to the administration of the tea and after the third dosage in the evening, it was also measured. The patient was monitored throughout the day at the Nyarkotey college of Holistic Medicine

## RESULT

His systolic pressure fell to 150mmHg and diastolic reading also fell to 100mmHg. His systolic pressure had 30 point reduction whilst his diastolic pressure had 20point reduction after.

## DISCUSSIONS

Hibiscus is a genus of flowering plants in the mallow family, Malvaceae. The genus is quite large, comprising several hundred species that are native to warm temperate, subtropical and tropical regions throughout the world.

Hibiscus tea, otherwise known as roselle or sour tea, has many health benefits. One of the few that is actually supported by clinical trials is the impact of hibiscus tea on blood pressure.

A daily 10 mg dose of hibiscus anthocyanins – equivalent to 1g of a 1% extract or 500 mg of a 2% extract – is optimal. Higher doses may be toxic. Hibiscus tea has been repeatedly shown to lower blood pressure in those with existing high blood pressure. Their blood pressure decreased around 10% systolic and 12% diastolic. The effect may be noticeable after just two weeks.

The most interestingly findings from this observational study is that, one need to drink about 3 cups a day. However, this remedy is one that must be used continuously to maintain its positive results. For instance, when the same patient stopped the Tea in the same study for just three days, the blood pressure began to creep upward.

Nyarkotey Tea is the only non-drug, FDA-Certified for Cardiovascular Health and general well-being. It is formulated based on science and research. Nyarkotey Tea lowers blood pressure by relaxing constricted blood vessels which cause high blood pressure. It does so by harnessing the therapeutic power of slow paced breathing with prolonged exhalation in a way that is virtually impossible to achieve on your own.

Lab study conducted in Ghana at the pharmacology department of Kwame Nkrumah

University of Science and Technology, Kumasi, Ashanti region, on efficacy showed the product Dr. Nyarkotey Herbal Tea produced dose-dependent reduction in the arterial blood pressure of the anaesthetized cat comparable to acetylcholine. The depressor effects of acetylcholine and Dr. Nyarkotey Herbal tea on the blood pressure of the anaesthetized cat were inhibited by 72.3+5.21% and 55.6 + 6.82% respectively, suggestive of muscarinic mediation.

The remarks states that, as per the findings, Dr. Nyarkotey Herbal Tea has hypotension effect and hence could be used in the management of hypertension. The No-Observable-Adverse-Effect level (OAEL) is greater than five times the stated daily dosage (7.0ml/kg) indicated by the manufacturer. The recommended daily dose is thus within the acceptable margin of safety.

The mechanisms for how hibiscus produces these benefits to blood pressure is revealed in the research by Obiefuna P *et al.*, 1994. According to the paper, hibiscus increases the ability of blood vessels to relax (called “vasodilation”) Obiefuna P *et al.*, 1994 and also affects a frequent target of blood pressure medications, an enzyme in the kidney called angiotensin-converting enzyme(Herrera-Arellano *et al.*, 2004 and Nwachukwu DC *et al.*, 2015.

## CONCLUSION

Hibiscus tea provides solid results for increasing blood flow and lowering blood pressure and should be considered into blood pressure management and also by men with erectile dysfunction as a potential significant help. It should also be consumed regularly to help prevent atherosclerosis

## CONFLICT OF INTEREST

None

## ACKNOWLEDGEMNET

The Registrar and Doctor of Naturopathic Medicine students of Nyarkotey College of Holistic Medicine, Mt. George Nartey and staff of RNG Medicine Research Lab, Tema community 18

## REFERENCES

1. Abubakar, S. M., Ukeyima, M. T., Spencer, J. P., & Lovegrove, J. A. (2019). Acute effects of hibiscus sabdariffa calyces on postprandial blood pressure, vascular function, blood lipids, biomarkers of insulin resistance and inflammation in humans. *Nutrients*, *11*(2), 341. doi: 10.3390/nu11020341.
2. Allison, L., Hopkins, M. G. L., Janet Funk, C. R. (2013). Hibiscus sabdariffa L. in the treatment of hypertension and hyperlipidemia: a comprehensive review of animal and human studies. *Fitoterapia Mar*; *85*, 84–9
3. Gurrola-Díaz, C. M., García-López, P. M., Sánchez-Enríquez, S., Troyo-Sanromán, R., Andrade-González, I., & Gómez-Leyva, J. F. (2010). Effects of Hibiscus sabdariffa extract powder and preventive treatment (diet) on the lipid profiles of patients with metabolic syndrome (MeSy). *Phytomedicine*, *17*(7), 500-505.
4. Laikangbam, R., & Devi, M. D. (2012). Inhibition of calcium oxalate crystal deposition on kidneys of urolithiatic rats by Hibiscus sabdariffa L. extract. *Urological research*, *40*(3), 211-218.
5. McKay, D. L., Chen, C. O., Saltzman, E., & Blumberg, J. B. (2010). Hibiscus sabdariffa L. tea (tisane) lowers blood pressure in prehypertensive and mildly hypertensive adults. *The Journal of nutrition*, *140*(2), 298-303.
6. Mozaffari-Khosravi, H., Jalali-Khanabadi, B. A., Afkhami-Ardekani, M., & Fatehi, F. (2009). Effects of sour tea (Hibiscus sabdariffa) on lipid profile and lipoproteins in patients with type II diabetes. *The Journal of Alternative and Complementary Medicine*, *15*(8), 899-903.
7. Nwachukwu, D. C., Aneke, E., Nwachukwu, N. Z., Obika, L. F. O., Nwagha, U. I., & Eze, A. A. (2015). Effect of Hibiscus sabdariffa on blood pressure and electrolyte profile of mild to moderate hypertensive Nigerians: A comparative study with hydrochlorothiazide. *Nigerian Journal of Clinical Practice*, *18*(6), 762-770.
8. Serban, C., Sahebkar, A., Ursosiu, S., Andrica, F., & Banach, M. (2015). Effect of sour tea (Hibiscus sabdariffa L.) on arterial hypertension: a systematic review and meta-analysis of randomized controlled trials. *Journal of hypertension*, *33*(6), 1119-