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Benefits of Noni Fruit Tea in Lowering People's Hypertension

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KEYWORDS
Noni fruit tea;
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ABSTRACT
Hypertension is one of the most dangerous non-communicable diseases. Hypertension is also called the silent killer because this disease often causes no symptoms but can increase morbidity and mortality. This study aims to analyze the effectiveness of noni fruit tea in reducing hypertension. This national article search was conducted with databases such as google scohlar. With keywords: "hypertension". 'noni fruit tea extract'. And the author found 5 relevant articles 2018-2023. Each of them represents the effectiveness of noni fruit tea in reducing hypertension against all samples. Shows mengkudu (Morindacitrifolia L.) can reduce blood pressure because of the content of active ingredients including scopoletin can reduce peripheral resistance and xeronin works as a diuretic that can increase urine volume. Mengkudu (Morindacitrifolia L.) is safe to consume because it is classified as a non-toxic substance. Hypertensive patients can consume 2 times a day, namely at 20-30 minutes before breakfast and 20-30 minutes before dinner.

1. INTRODUCTION

Hypertension, or better known as high blood pressure, is a condition in which blood pressure increases beyond the normal limit of 120/80 mmHg, with a normal blood pressure limit that is still considered safe is less than 130/85 mmHg. Some factors that can trigger hypertension include genetics, gender, age, stress levels, obesity, and consumption of salt and alcohol (Prianahatin & Retnaningsih, 2023). Hypertension is often referred to as the "hidden killer" because many sufferers do not realize the initial symptoms they experience. Persistently high blood pressure in the long term can lead to various complications. If it affects the heart, hypertension can cause myocardial infarction, coronary heart disease, or congestive heart failure. If it affects the brain, hypertension can trigger stroke or hypertensive encephalopathy. In the kidneys, this condition can lead to chronic kidney failure, and if it affects the eyes, hypertension can cause hypertensive retinopathy (Afifah, 2019).

Hypertension can also be accompanied by symptoms that cause discomfort to the patient, such as headaches, palpitations, difficulty breathing, fatigue, and blurred vision.Complications of hypertension can affect various organs (Fajri, 2017).Hypertension has become one of the leading causes of death, with the number of cases increasing every year.Data from the World Health Organization (WHO) in 2015 showed that approximately 1.13 billion people worldwide have hypertension, and this number continues to grow.It is estimated that by 2025 there will be 1.5 billion people with hypertension, and every year 10.44 million people die from hypertension and its complications (Purwono, Sari, Ratnasari, & Budianto, 2020).

According to research by Puspita and Imelati (Sari, Arisandi, Morika, & Novrika, 2018), hypertension can begin to appear in the twenties to thirties, although symptoms can also appear before the age of twenty.Symptoms are often difficult to recognize clearly, but there are some signs that can be observed. In the fifties, the symptoms of hypertension tend to be more pronounced as complications and severe symptoms begin to appear. However, many

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people with hypertension are unaware of their condition. A healthy-looking body and a calm, even-tempered nature often mask the true condition of hypertension. This is what makes hypertension known as "the silent killer."

There are two types of hypertension treatment, pharmacological and non-pharmacological. Pharmacological therapy involves the use of antihypertensive drugs, either as single drugs or in combination. Meanwhile, nonpharmacological therapy is carried out by changing lifestyles, such as adjusting diet, reducing salt consumption, exercising regularly, and reducing alcohol consumption and smoking (Fauziah, 2020). Pharmacological treatment or the use of antihypertensive drugs is often required in the long term, even for life, including diuretics, sympathetic agents, beta-blockers, and vasodilators. The advantage of chemical diuretic drugs lies in their accurate dosage because they consist of extracts of active substances. However, the disadvantages are a higher risk of side effects compared to herbal medicines, as well as a higher price since the raw materials are still imported. On the other hand, non-pharmacological treatment can help control blood pressure, so pharmacological treatment can be avoided or at least delayed. The advantages of herbal medicine are that it is safer to consume, effective without causing side effects, more affordable, and cheap because it can be grown by yourself or found in the garden, and proven safe for consumption (Sari, Arisandi, Morika, & Novrika, 2018).

Noni (Morinda citrifolia L.) is a tropical plant used as food and herbal medicine (Juliani, 2019).Experts from Stanford University, University of Hawaii, University of California (UCLA), and University College London found that noni has benefits in lowering blood pressure.This fruit is believed to help overcome various diseases, including hypertension, due to the content of prexeronin which acts on the vasoactive endothelium to lower blood pressure.In addition, the scopoletin content in noni serves to normalize blood pressure through spasmolytic effects (Melati, 2021).

The scopoletin content in noni can reduce peripheral resistance, while xeronin acts as a diuretic that increases urine excretion. Scopoletin also helps dilate blood vessels that are narrowed, improve blood circulation, and reduce the workload of the heart in pumping blood, so that blood pressure becomes normal.This study aims to examine the benefits of noni fruit (M. citrifolia L.) in overcoming hypertension, especially in preventing contraction of blood vessels so that blood pressure remains stable (Festi, 2020).

2. METHOD

The data collection method in this research uses literature study.Literature study is the first step in the data collection process, where data and information are obtained from various documents, including written documents, photos, images, and electronic documents that support the writing process.The credibility of the research results will increase if supported by photographs or relevant academic and artistic papers (Sugiyono, 2005).Therefore, it can be concluded that literature review plays an important role in increasing the credibility of research results.

The literature review method includes a series of library data collection activities, reading, recording, and processing research materials.Literature review is an important step in research, especially for academic research that aims to develop theoretical aspects or provide practical benefits.Every researcher conducts a literature review to build a theoretical basis, framework, and formulate hypotheses. Thus, researchers can classify, allocate, organize, and utilize a variety of literature in their field (Kartiningrum, 2015).

There are several ways to consume noni as herbal medicine, such as being made into juice or simply drinking the juice. In this study, noni was used as the main ingredient to make tea. The process of making noni tea includes sorting, washing, cutting, and drying in the sun for 2-3 days. The noni fruit used is medium ripeness, characterized by a yellowish-white color, firm flesh, and no pungent odor.

After the preparation stage, noni tea is made by brewing 5 grams of dried noni tea in 200 cc of hot water (70-90˚C) for 5 minutes. One small piece of roasted cinnamon (2 cm) and 1 gram of rock sugar were added to neutralize the distinctive aroma of noni, without reducing the benefits of the tea. This tea was given to the subjects for 1 month (30 days), consumed twice a day, in the morning before breakfast and in the afternoon before dinner.

The feasibility of noni tea has been tested through limited panelists using organoleptic tests, including assessments of color, aroma, taste, and clarity. Based on the organoleptic test, noni tea is considered suitable for consumption, with a red-brown color, good taste, not too dominant noni aroma, and clear appearance like regular tea.

This study emphasizes relevant literature on the effectiveness of noni tea in reducing high blood pressure. The reference study used a pre-experiment design with a pretest-posttest design in one group, purposive sampling technique, paired T test, and pre-experiment design with simple random sampling. Five related articles will further explain these methods.

This first article is research conducted by Safitri & Ismawat (2018) at UPTD.Griya Werdha Surabaya City.By using a quasi-experimental method with a Pretest-Postest Control Group Design.Determination of research samples using inclusion and exclusion criteria. The research sample was 34 respondents who were divided into two groups.The noni fruit tea intervention was given as much as 5 grams for 30 days with the frequency of administration 2 times a day in the morning and evening.Blood pressure measurements were taken at the beginning of the study and at the end of the study.Data analysis used Wilcoxon test and Mann Whitney test. The results of the Mann Whitney test showed that there was a significant effect after the noni fruit tea intervention in the treatment group compared to the control group with systolic blood pressure values (p=0.000171) and diastolic blood pressure (p=0.000480) with α=0.05, which means that blood pressure in the treatment group after the noni fruit tea intervention decreased blood pressure compared to the control group.So it is necessary to carry out regular nutritional education and provide noni fruit tea as an alternative medicine that is effective in reducing hypertension, on a scheduled basis.

The second article is a study by Harahap (2019) in the Hutaimbaru Health Center work area.The type of research used is quantitative research. This research design uses a quasy experimental method with a one group pretest-posttes design.This study used purposive sampling technique, namely sampling based on certain considerations. This sampling technique uses the power analysis formula and the number of samples in this study were 16 experimental group respondents. Data analysis in this study was univariate and bivariate analysis using the Wilcoxon test. The results of the study obtained the mean value of the pre-test 145.63 and post-test 128.13. The results of the Wilcoxon test which showed a p-value of 0.000 ($p < 0.05$) meant that there was an effect on the decrease in blood pressure before and after being given noni fruit tea.Noni fruit tea can be used as an alternative therapy to lower blood pressure for people with hypertension.

The third article is a research by Festi (2020) in the laboratory of Brawijaya University Malang. This research is a type of pre-experimental research. This research design uses one group pre-test post test design. The population in this study was a group of male wistar white rats, the sample in this study was a portion of male wistar white rats in the laboratory of Brawijaya University Malang with an age of 3-4 years with a body weight of 20-30 grams, no anatomical abnormalities were seen, white rats that had experienced hypertension totaling 16 male wistar white rats. The instruments in this study were observation sheets and blood pressure measurements for blood pressure levels. Statistical test analysis using Wilcoxon test. The results of blood pressure examination before being given noni extract, systolic pressure 150.93 mmHg, diastole pressure 112.87 mmHg. After giving noni extract, the average systole blood pressure: 110.625 mmHg, diastole blood pressure average Wilcoxon statistical test results showed 85.125 mmHg that $p = 0.000 < a = 0.05$ indicates a decrease in blood pressure before and after the administration of noni extract. The conclusion of this study shows that there is an effect of noni extract on blood pressure reduction in hypertensive male Wistar experimental rats. The development of natural ingredients in the nonpharmacological management of hypertension needs to be done with dosage and effectiveness.

The fourth article is a study by Megawati & Hidayat (2015) on the elderly at the Margo Mukti Rembang Social Rehabilitation Unit. This research design uses a pre-experiment design with a one-group pre-post test design. The population in this study were hypertensive patients at the Margo Mukti Rembang Social Rehabilitation Unit. The sampling technique used consecutive sampling so that the sample size was 19 respondents. Data were collected using blood pressure observation and then analyzed using the Paired Samples Test. The results of the Paired Samples Test test obtained a p value = 0.010 then $\alpha < 0.05$. This means that this study proves the effect of noni on lowering blood pressure in elderly people with hypertension in the Margo Mukti Rembang Social Rehabilitation Unit. It is expected that respondents use alternative treatments such as noni juice properly and appropriately so that their blood pressure can be better.

The fifth article is a study by Aritahanu (2022) at the Khemon Jaya SP V Health Center, Waropen Regency.The research design used was quasi experiment with two group pre test-post test design.The study used 14 respondents.The respondent group was observed before the intervention, then observed again after the intervention.Data analysis used Mann Whitneyy statistical test (U-test).The results showed a significant

effect of noni juice administration on reducing blood pressure in hypertensive patients at the Khemon Jaya SP V Health Center.Noni juice administration has the potential to be used in alternative treatment of hypertension for adult patients.Statistical analysis with Mann-Whitney (U-test) on the blood pressure of respondents who were given two doses of noni juice above showed a P value = <0.05 (p-value 0.000 <0.05).This value indicates a significant difference in the average decrease in systolic and diastolic blood pressure in hypertensive patients before and after being given intervention with noni juice either at a dose of 100 g/100ml or 100 g without the addition of water.The ability of noni juice to reduce the blood pressure of hypertensive respondents observed at two different doses shows the potential of stable noni juice to be used as an alternative treatment for hypertensive patients.This means that the administration of noni fruit juice can reduce the blood pressure of hypertensive patients. The fourth article is a study by Megawati & Hidayat (2015) on the elderly at the Margo Mukti Rembang Social Rehabilitation Unit.This research design uses a pre-experiment design with a one-group pre-post test design.

The population in this study were hypertensive patients at the Margo Mukti Rembang Social Rehabilitation Unit.The sampling technique used consecutive sampling so that the sample size was 19 respondents.Data were collected using blood pressure observation and then analyzed using the Paired Samples Test.The results of the Paired Samples Test test obtained a p value = 0.010 then α < 0.05.This means that this study proves the effect of noni on lowering blood pressure in elderly people with hypertension in the Margo Mukti Rembang Social Rehabilitation Unit.It is expected that respondents use alternative treatments such as noni juice properly and appropriately so that their blood pressure can be better.

21x/min, temperature: 36.5^0 C. The main priority nursing diagnosis is the risk of blood pressure instability characterized by Subjective Data: the client said blurred vision, the client said the weight on the back of the neck, often tired, dizzy. Objective Data: the client looked weak, blood pressure sometimes rose sometimes fell, the highest was 180/110 mmHg and the lowest was 160/100 mmHg. Evaluation for diagnosing the risk of blood pressure instability. Before giving noni fruit juice with a mixture of honey the client's blood pressure was 170/110 mmHg and after being given noni fruit juice with a mixture of honey for 2 consecutive weeks in 5 visits the client's blood pressure was 150/90 mmHg, so the results obtained decreased blood pressure in Mrs. K by 20/20 mmHg, namely from 170/110 mmHg to 150/90 mmHg. So that the decrease in blood pressure is 4 mmHg every day. So the author concludes that the administration of noni fruit juice therapy with a mixture of honey is effective for lowering blood pressure.

Artikel ketujuh merupakan penelitian oleh Anggraini, Prabowo, & Kuncoro (2020) di wilayah Kecamatan Maura Jawa, Kalimantan Timur. Metode penelitian yang digunakan ialah quasi experimental dan prosedur penelitian melakukan pengukuran sebelum dan sesudah diberikan perlakuan selama 7 hari. Pengumpulan data karakteristik responden didapatkan persentase tertinggi umur 36-45 tahun sebanyak 45%, perempuan 70%, pendidikan SMP 45%, riwayat keluarga 60%, kebiasaan olahraga yang sering 55% dan IMT normal 45%. Pengumpulan data uji mutu hedonik sampel diperoleh persentase tertinggi untuk uji rasa manis 65%, uji aroma tajam 75% dan uji tekstur lembur sebesar 75%. Hasil uji statistik dengan metode paired sample t-test menunjukkan terjadi penurunan secara signifikan pada tekanan darah sistolik p=0,000 < α (0,05) sebesar 12,3 mmHg dan tekanan darah diastolik p=0,000 < α (0,05) sebesar 5,4 mmHg pada kelompok perlakuan. Berdasarkan hasil penelitian dapat disimpulkan bahwa pemberian air perasan daging buah mengkudu dan mentimun memberikan efek penurunan tekanan darah sistolik dan diastolik pada pasien hipertensi.

3. RESULT AND DISCUSSION

The results of the first article from the Mann Whitney test showed that there was a significant effect after the noni fruit tea intervention in the treatment group compared to the control group with the value of systolic blood pressure (p=0.000171) and diastolic blood pressure (p=0.000480) with α=0.05, which means that blood pressure in the treatment group after the noni fruit tea intervention decreased blood pressure compared to the control group.So it is necessary to conduct regular nutrition education and provide noni fruit tea as an alternative medicine that is effective in reducing hypertension, on a scheduled basis.

The results of the second article based on the results of the Wilcoxon test which shows a p-value of 0.000 (p <0.05) means that there is an influence on the decrease in blood pressure before and after being given noni fruit tea.Noni fruit tea can be used as an alternative therapy to lower blood pressure for people with hypertension.

The results of the third article based on the results of blood pressure examination before being given noni extract, systolic pressure 150.93 mmHg, diastole pressure 112.87 mmHg.After giving noni extract the average systole blood pressure:

110.625 mmHg, diastole blood pressure average Wilcoxon statistical test results showed 85.125 mmHg that p = 0.000 < a = 0.05 indicates a decrease in blood pressure before and after the administration of noni extract. The conclusion of this study shows that there is an effect of noni extract on blood pressure reduction in hypertensive male Wistar experimental rats. The development of natural ingredients in the nonpharmacological management of hypertension needs to be done with dosage and effectiveness.

The results of the fourth article are based on the results of the Paired Samples Test getting a p value = 0.010 then α < 0.05. This means that this study proves the effect of noni on lowering blood pressure in elderly people with hypertension at the Margo Mukti Rembang Social Rehabilitation Unit. It is expected that respondents use alternative treatments such as noni juice properly and appropriately so that their blood pressure can be better.

Hasil artikel kelima berdasarkan hasil penelitian menunjukkan pengaruh signifikan pemberian jus mengkudu terhadap penurunan tekanan darah pasien hipertensi di Puskesmas Khemon Jaya SP V. Pemberian jus mengkudu potensial digunakan dalam pengobatan alternatif hipertensi bagi pasien dewasa. Analisis statistik dengan Mann-Whitney (U-test) pada tekanan darah responden yang diberi dua dosis jus mengkudu tersebut di atas menunjukkan nilai P value = < 0,05 (p-value 0,000 < 0,05). Nilai ini mengindikasikan perbedaan yang bermakna rata-rata penurunan tekanan darah sistolik dan diastolik pada penderita hipertensi sebelum dan sesudah diberikan intervensi dengan jus mengkudu baik pada dosis 100 g/100ml ataupun 100 g tanpa penambahan air. Kemampuan jus mengkudu dalam menurunkan tekanan darah responden hipertensi yang teramati pada dua dosis berbeda tersebut menunjukkan potensi jus mengkudu yang stabil untuk dapat digunakan sebagai pengobatan alternatif bagi pasien hipertensi. Ini berarrti pemberian jus buah mengkudu bisa menurunkan tekanan darah pasien hipertensi. Pemberian dosis jus mengkudu baik 100 g/100 ml air atau 100 g tanpa penambahan air bisa menurunkan tekanan darah responden yang mengidap hipertensi. Kemampuan antihipertensi jus buah mengkudu kemungkinan besar didukung oleh keberadaan senyawa scopoletin dan berbagai senyawa fitokimia yang dikandungnya.

Hasil artikel keenam berdasarkan evaluasi untuk diagnosa resiko ketidakstabilan tekanan darah. Sebelum dilakukan pemberian jus buah mengkudu dengan campuran madu tekanan darah klien 170/110 mmHg dan setelah diberikan jus buah mengkudu dengan campuran madu selama 2 minggu berturut-turut dalam 5x kunjungan tekanan darah klien 150/90 mmHg, sehingga didapatkan hasil penurunan tekanan darah pada Ny.K adalah sebesar 20/20 mmHg yaitu dari 170/110 mmHg menjadi 150/90 mmHg. Sehingga penurunan tekanan darah sebesar 4 mmHg setiap hari. Maka penulis menyimpulkan bahwa pemberian terapi jus buah mengkudu dengan campuran madu efektif untuk penurunan tekanan darah.

Hasil artikel ketujuh berdasarkan hasil uji statistik dengan metode paired sample t-test menunjukkan terjadi penurunan secara signifikan pada tekanan darah sistolik p=0,000 < α (0,05) sebesar 12,3 mmHg dan tekanan darah diastolik p=0,000 < α (0,05) sebesar 5,4 mmHg pada kelompok perlakuan. Berdasarkan hasil penelitian dapat disimpulkan bahwa pemberian air perasan daging buah mengkudu dan mentimun memberikan efek penurunan tekanan darah sistolik dan diastolik pada pasien hipertensi.

Dari semua hasil literatur riview yang telah dipaparkan pada artikel menjelaskan hasil penelitian tentang pemberian teh buah mengkudu efektif untuk menurunkan hipertensi.

The results of the fifth article based on the results of the study showed a significant effect of noni juice administration on reducing blood pressure in hypertensive patients at the Khemon Jaya SP V Health Center.Noni juice administration has the potential to be used in alternative treatment of hypertension for adult patients.Statistical analysis with Mann-Whitney (U-test) on the blood pressure of respondents who were given two doses of noni juice mentioned above showed a P value = <0.05 (p-value 0.000 <0.05). This value indicates a significant difference in the average decrease in systolic and diastolic blood pressure in hypertensive patients before and after being given intervention with noni juice either at a dose of 100 g/100ml or 100 g without the addition of water.The ability of noni juice to reduce the blood pressure of hypertensive respondents observed at two different doses shows the potential of stable noni juice to be used as an alternative treatment for hypertensive patients.This means that the administration of noni fruit juice can reduce the blood pressure of hypertensive patients.Giving a dose of noni juice either 100 g/100 ml of water or 100 g without the addition of water can reduce the blood pressure of respondents with hypertension. The antihypertensive ability of noni fruit juice is most likely supported by the presence of scopoletin compounds and various phytochemical compounds it contains.

The results of the sixth article are based on the evaluation for diagnosing the risk of blood pressure instability.Before giving noni fruit juice with a mixture of honey, the client's blood pressure was 170/110 mmHg and

after being given noni fruit juice with a mixture of honey for 2 consecutive weeks in 5 visits the client's blood pressure was 150/90 mmHg, so the results obtained decreased blood pressure in Mrs. K by 20/20 mmHg, namely from 170/110 mmHg to 150/90 mmHg. So that the decrease in blood pressure is 4 mmHg every day.So the author concludes that the administration of noni fruit juice therapy with a mixture of honey is effective for lowering blood pressure.

The results of the seventh article based on the results of statistical tests with the paired sample t-test method showed a significant decrease in systolic blood pressure $p=0.000 < \alpha$ (0.05) by 12.3 mmHg and diastolic blood pressure $p=0.000 < \alpha$ (0.05) by 5.4 mmHg in the treatment group.Based on the results of the study, it can be concluded that the administration of juice of noni and cucumber fruit flesh has the effect of reducing systolic and diastolic blood pressure in hypertensive patients.

From all the results of the literature review that has been presented in the article explaining the results of research on the administration of noni fruit tea is effective for reducing hypertension.

Mengkudu meningkatkan sistem kekebalan tubuh, keteraturan fungsi sel dan regenerasi sel–sel yang rusak. Mengkudu sangat berguna sebagai obat penyembuhan karena beberapa fungsi sebagai berikut: meningkatkan energi tubuh, anti peradangan dan antitistamin, mengandung anti zat bekteri yang dapat membantu mengatur jadwal tidur, mengatur suhu tubuh dan kondisi psikis.

Kandungan buah Mengkudu meliputi 1) Zat nutrisi: Zat nutrisi yang dibutuhkan tubuh, seperti protein, vitamin dan mineral penting, tersedia dalam jumlah cukup pada buah dan daun mengkudu. Selenium, salah satu mineral yang terdapat pada mengkudu merupakan antioksidan yang hebat; 2) Terpenoid: zat ini membantu dalam proses sintesis organic dan pemulihan sel-sel tubuh; 3) Zat anti bakteri: zat – zat aktif yang tekandung dalam sari buah mengkudu itu dapat memastikan bakteri penyebab infeksi, seperti pseudomonas aeruginosa, protens morganii, staphylococcus aureus, bacillus sublitis dan Escherichia coli.

Berdasarkan hasil penelitian menujukkan bahwa sebagian besar lansia pada faktor usia sangat beresiko mengalami hipertensi. Hipertensi pada lanjut usia atau lansia disebabkan oleh perubahan yang secara alamiah di dalam tubuh yang dapat mempengaruhi cara kerja jantung, pembuluh darah dan hormon, sehingga terjadi beberapa perubahan fisiologis yaitu terjadi peningkatan tekanan resistensi perifer dan aktivitas, simpatik serta dinding arteri akan mengalami perubahan penebalan karena ada penumpukan zat kolagen pada lapisan otot yang menyebabkan pembuluh darah mengalami penyempitan dan kekakuan. Berdasarkan hasil penelitian menunjukkan bahwa sebagian besar lansia pada kelompok kontrol sebelum dan sesudah tanpa intervensi pemberian teh buah mengkudu tekanan darah sistole lansia berada pada kategori hipertensi sedang, sedangkan tekanan darah diastolik lansia berada pada kategori hipertensi ringan dan hipertensi sedang. Hipertensi pada kelompok lansia disebut dengan hipertensi sistolik dimana dalam hal ini semakin bertambahnya usia seseorang akan mengalami kenaikan tekanan darah karena pada usia lanjut terjadi penebalan dan kekakuan pada dinding arteri yang disebabkan oleh arterosklerosis sehingga jantung harus bekerja secara keras untuk memompa darah dengan keadaan pembuluh darah yang mengalami penyempitan, maka hal ini akan menyebabkan tekanan darah menjadi naik. Tekanan darah sistolik akan mengalami peningkatan sampai usia 80 tahun sedangkan tekanan darah diastolik akan mengalami peningkatan samapi berusia 55-60 tahun. Teh buah mengkudu sebanyak 5 gram dalam penelitian ini terbukti dapat dijadikan sebagai alternatif pengobatan tradisional serta efektif dalam menurunkan tekanan darah sistolik sebesar 26% dan diastolik sebesar 20% pada kelompok lansia hipertensi. Scopoletin adalah salah satu zat yang terkandung di dalam buah mengkudu. Scopoletin merupakan senyawa fenol yang memliki titih didih 356˚C.17 Pada Penelitian Setyaningsih, cacahan buah mengkudu yang dikeringkan dan diseduh dengan air panas mampu menurunkan hipertensi secara signifikan ($p<0,05$).6, Hal ini sejalan dengan penelitian yang dilakukan pada buah mengkudu yang dijadikan seduhan teh secara signifikan ($p<0,05$) mampu menurunkan hipertensi pada lansia. Faktor lingkungan seperti stres pada masing-masing individu, dimana stres dapat memicu terjadinya hipertensi karena adanya peningkatan saraf simpatis sehingga hal ini dapat meningkatkan tekanan darah secara intermitten atau tidak menentu. Saraf simpatis merupakan saraf yang bekerja di saat tubuh kita melakukan sebuah aktivitas. Apabila stres yang dialami seorang induvidu berkepanjangan maka akan mengakibatkan tekanan darah menetap dan tinggi. Stres atau rasa takut menyebabkan tekanan arteri dalam darah meningkat sebanyak dua kali dari normal dalam waktu beberapa detik.

Hypertensive patients are expected to organize a healthy diet and regularly consume noni fruit tea directly according to operational standards. Foods that should be avoided or at least really limited by people with hypertension:

a) Salt.The main food that needs to be made an “enemy” by people with high blood pressure is salt or sodium.This is because salt can bind fluids, thereby increasing blood volume.As a result, blood pressure increases.If you have

high blood pressure, salt intake needs to be limited to a maximum of 1,500 milligrams per day, or the equivalent of 1 teaspoon.

b) Pickles. Because they consist of chopped vegetables, such as cucumber and carrots, you might think that pickles are healthy.However, pickles are usually added with salt to preserve them, which is not good for people with high blood pressure.The added salt in pickles can settle into the cucumber, like a sponge that absorbs water.
c) Fried Foods. One of the most popular cooking processes is frying. However, fried foods can be a taboo for people with high blood pressure, because they can contain trans fats.
d) Chicken Skin. You might not think it, but chicken skin is also one of the foods that people with high blood pressure should avoid. The reason is because chicken skin contains a lot of saturated fat and trans fat. Especially if processed by frying.
e) Processed Meat. Various processed meats such as sausages, are often packed with sodium, so that they are durable and rich in flavor. When mixed with other high-salt foods, such as cheese, various seasonings, and pickles, salt intake in the body becomes excessive.
f) Canned Soups and Tomatoes. Canned foods are often a practical solution when preparing meals. However, foods such as soup and canned tomatoes are in fact high in sodium, so they are not good for people with high blood pressure. A can of chicken and vegetable soup contains about 2,140 milligrams of sodium, while one serving (135 grams) of marinara sauce contains 566 milligrams of sodium To get around this, look for canned food products that are low in sodium, or make your own soup and tomato sauce from natural ingredients. That way, you can control how much salt you want to include.
g) Sugary Foods and Drinks. Foods with extra calories and high sugar can cause weight gain quickly. Being overweight or obese can be a trigger for high blood pressure. This is because the pile of fat in the body can make the heart work extra to constrict blood vessels, resulting in high blood pressure. Therefore, limit your daily sugar consumption, by reducing sugary foods and drinks.
h) Margarine. Margarine contains trans fat which is harmful for people with high blood pressure. However, there are some margarine products that do not contain trans fats. So, read the packaging label carefully, because it is very important to always avoid trans fats from any source.
i) Alcohol. Frequent consumption of alcohol can cause blood pressure to rise. It can also damage blood vessel walls, and increase the risk of further complications.

4. CONCLUSION

Noni fruit (Morinda Citrifolia L.) is an effective plant as an anti-hypertensive with several compounds, namely prexeronin (endothelial vasoactive), Scopoletin (causes vasodilation) and xeronine (diuretic effect).So it is very good for consumption for people with hypertension. And from the results of the study before and after the intervention of giving noni fruit tea, namely with a sig (2-tailed) of 0.000 <0.05, it can be concluded that there is a significant effect of noni fruit tea on lowering blood pressure in people with hypertension. Research on the Benefits of Noni Fruit Tea in Lowering Hypertension* indicates that tea processed from noni fruit extract (Morinda citrifolia) has the potential to help lower blood pressure in individuals with hypertension. Active ingredients in noni fruit, such as scopoletin, flavonoids, and antioxidants, are known to have a role in increasing the elasticity of blood vessels and improving blood flow.

The results showed a decrease in blood pressure in participants who regularly consumed noni tea for a certain period. Consistent use of noni tea provides a significant blood pressure lowering effect without causing serious side effects, so it can be a promising natural alternative for people with hypertension. The benefits of noni tea may vary based on dosage, frequency of consumption, as well as individual health conditions. Therefore, noni fruit tea can be considered as a potential adjunctive therapy for hypertension, but it is recommended to remain under the supervision of medical personnel for safe and optimal use.

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