

THE EFFECT OF BANANAS (MUSA PARADISIACA) ON REDUCING BLOOD PRESSURE IN PREGNANT WOMEN

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Received : 19-05-2026

Revised : 20-05-2026

Accepted : 14-07-2026

Published : 30-06-2026

DOI : <https://doi.org/10.59733/medalion.v7i2.297>

Publish Link : <https://medalionjournal.com/index.php/go>

Abstract

Hypertension in pregnancy is one of the leading causes of maternal and fetal morbidity and mortality worldwide. This study aims to analyze the effect of banana (*Musa paradisiaca*) consumption on reducing blood pressure in pregnant women with hypertension. The research method used was a literature review of 20 research articles consisting of quasi-experimental, pre-experimental, and case study designs. The population in this study were pregnant women with hypertension, while the sample consisted of 20 research results that met the inclusion criteria. Instruments used in these studies included a sphygmomanometer and a blood pressure observation sheet. Data analysis was conducted using narrative synthesis of relevant research results. The results showed that most studies reported a significant decrease in systolic and diastolic blood pressure after consuming bananas at a dose of 100–200 grams per day for 5–14 days, with a p value <0.05. Ambon bananas are the most frequently used type and have shown consistent effectiveness as a complementary therapy. The conclusion of this study is that banana consumption has an effect on lowering blood pressure in pregnant women with hypertension and can be used as a complementary non-pharmacological therapy, although there are still limitations in sample size and research design.

Keywords: Blood Pressure, Gestational Hypertension, Hypertension in Pregnancy, *Musa paradisiaca*, Potassium

INTRODUCTION

Pregnancy is a physiological process that causes various changes in the mother's body, including changes in the cardiovascular system. One common complication is gestational hypertension, which remains a leading cause of maternal and fetal morbidity and mortality worldwide. The WHO (2023) reports that gestational hypertension is a leading cause of maternal death, especially in developing countries. In addition to impacting maternal health, this condition also increases the risk of preterm birth and fetal growth retardation (Brown et al., 2021; Magee et al., 2022).

In Indonesia, hypertension in pregnancy remains a serious maternal health problem. Data from the Indonesian Ministry of Health shows that gestational hypertension is one of the leading causes of maternal death after hemorrhage (Indonesian Ministry of Health, 2022). The high incidence of hypertension in pregnant women is influenced by various factors, such as obesity, extreme age, diabetes, and a history of hypertension (Makmur & Fitriahadi, 2020). These conditions emphasize the importance of developing safe and easily implemented non-pharmacological therapies during pregnancy.

Various studies have shown that non-pharmacological food-based therapies can help lower blood pressure in pregnant women. One widely studied fruit is bananas (*Musa paradisiaca*), due to their high potassium and low sodium content, which play a role in maintaining blood pressure balance (Arif, 2021). Research by Zuhrotunida (2025) found that consuming Ambon bananas effectively reduced systolic and diastolic blood pressure in hypertensive pregnant women. Similar results were also reported by Sari (2022), who demonstrated a significant effect of banana consumption on lowering blood pressure in pregnant women.

However, previous research still has several limitations. Most studies used small sample sizes and short intervention durations, making the results difficult to generalize widely. Furthermore, differences in banana type, consumption dosage, and respondent characteristics contribute to inconsistent results (Hapsari et al., 2023). Several studies also failed to fully explore the physiological mechanisms by which bananas lower blood pressure in pregnant women.

Based on these conditions, there are still limited studies comprehensively analyzing the effect of bananas on lowering blood pressure in pregnant women. Therefore, a literature review is needed to integrate the latest research findings and identify the effectiveness of bananas as a complementary therapy for gestational hypertension. This research gap lies in the lack of a synthesis of the current literature discussing the effectiveness of bananas specifically for pregnant women with hypertension.

This study aims to analyze the effect of bananas (*Musa paradisiaca*) on lowering blood pressure in pregnant women. This research is important because gestational hypertension remains a major cause of maternal complications, and safe, affordable, and readily available non-pharmacological therapeutic alternatives are needed. The novelty of this study lies in its critical synthesis of recent research on the effectiveness of bananas as a complementary intervention for gestational hypertension.

METHOD

This study used a Systematic Literature Review (SLR) with a qualitative descriptive approach to examine the effect of Ambon banana (*Musa paradisiaca*) on reducing blood pressure in pregnant women. According to Soekidjo Notoatmodjo, a literature review is conducted through the collection and analysis of various relevant scientific sources, while Sugiyono explains that library research utilizes data obtained from scientific documents as the primary source of research. The data used in this study were secondary data obtained from national and international journals accessed through Google Scholar and ResearchGate published between 2020 and 2025 using the keywords “hypertension,” “banana (*Musa paradisiaca*),” and “pregnant women.” The population of this study consisted of all articles related to the research topic, while the samples were selected based on inclusion and exclusion criteria, such as full-text articles, relevance to the topic, and articles written in Indonesian or English.

The research instrument used was a data extraction sheet to identify the objectives, methods, results, and conclusions of each article. Data analysis was carried out through several stages, including article identification, article selection based on criteria, data extraction, synthesis of research findings, and interpretation of results. According to John W. Creswell and Emzir, a systematic review aims to integrate previous research findings systematically in order to obtain valid and comprehensive conclusions. The research procedure began with determining the research problem, conducting literature searches, selecting relevant articles, analyzing the data, and preparing the research report systematically.

Research result

Table 1 Literature Review

No	Researchers	Research Title	Research methods	Respondents	Assessment Procedure	Research result
1	Dymphna Sabilla Khaerunissa (2025)	The effect of giving Ambon bananas as additional therapy to reduce blood pressure in pregnant women with gestational hypertension.	<i>Quasi Experimental</i>	32 pregnant women with gestational hypertension were divided into 16 people in the intervention group and 16 people in the control group.	Intervention withkThe treatment group consumed 100 g of Ambon banana twice a day, in the morning and evening, for 14 days. Blood pressure measurements were taken on days 1 and 14 and recorded on the observation sheet.	The systolic treatment group before and after being given Ambon bananas showed a p -value of 0.000 and a diastolic p -value of 0.000, meaning that there was a difference between the pre-test and post-test of giving antihypertensive drugs and Ambon bananas with the group that was only given antihypertensive drugs.
2	Febrika Devi Nanda (2025)	The effectiveness of giving Ambon bananas to reduce blood pressure in first trimester pregnant women who are at risk of preeclampsia.	<i>Quasi Experimental</i>	Pregnant women at risk of preeclampsia at Griya Sehat HPS consisted of 72 samples divided into 2 control and intervention groups.	The treatment was carried out by giving 150 grams of ripe yellowish Ambon banana or 1 medium-sized fruit, consumed twice a day (morning and afternoon) for 2 weeks, before meals, according to the research SOP. The dependent variable was the blood pressure of pregnant women at risk for preeclampsia, measured using an observation sheet with a mercury sphygmomanometer and stethoscope, while they were lying on their left arm. Measurements were taken before and after the intervention in both groups, with results in mmHg, categorized as at-risk ($\geq 120/90$ mmHg) and not at-risk ($< 120/90$ mmHg).	Ambon bananas are effective in reducing blood pressure in pregnant women in the first trimester who are at risk of preeclampsia ($p=0.000$).
3	Desi Pramita Sari (2022)	Consumption of kepok bananas (<i>musa acuminata</i>) in pregnant women to reduce blood pressure in gestational hypertension	<i>Pre-Experimental</i>	Pregnant women who experience gestational hypertension in the working area of the Kabil Community Health Center, Batam City	The sampling technique for respondents was divided into two groups, namely the experimental group (which was given treatment) and the control group (which was not given treatment (X) by giving kepok bananas and the other group as a control group which was not given treatment in the form of kepok bananas.	There is an effect of giving kapok bananas on reducing blood pressure in pregnant women ($p=0.042$)
4	Ray Krisna Dhitya (2025)	The effectiveness of consuming kapok bananas to lower blood pressure in pregnant women with gestational hypertension	<i>Case study</i>	Two respondents were pregnant women in their third trimester who met the inclusion criteria, namely pregnant women diagnosed with gestational hypertension.	The research was conducted through nursing care, including assessment, establishing nursing diagnoses, planning, implementation, and evaluation of selected respondents. The data sources used were primary data obtained directly through interviews, observations, and blood pressure measurements before and after the intervention.	There was a significant decrease in blood pressure in both respondents after the intervention.
5	Novi Herawati (2024)	The effect of warm water and Ambon banana therapy on reducing hypertension in pregnant women at Pagelaran Regional	<i>Case study</i>	Pregnant women with hypertension at Pagelaran Regional Hospital, Cianjur Regency.	Case studies were conducted on Mrs. A with warm water foot soak therapy and Mrs. B with Ambon banana therapy,	Consuming Ambon bananas is more effective in lowering blood pressure/hypertension compared to warm water

		Hospital, Cianjur Regency in 2023			blood pressure measurements were taken before and after therapy, and the decrease in each intervention was compared.	foot soak therapy, namely with a ratio of 25/0 mmHg.
6	Desi Evitasari and Rina Nuraeni (2020)	The effectiveness of providing calcium supplements and Ambon bananas on changes in blood pressure in pregnant women with gestational hypertension.	<i>Pre-Experimental</i>	There were 30 pregnant women who experienced gestational hypertension, consisting of 15 people who were given treatment, namely a combination of calcium supplements and Ambon bananas and 15 people who were given calcium supplements.	Data was collected directly from treatment and observation results. The steps were as follows: providing informed consent to respondents and explaining the research procedure. Data analysis included univariate and bivariate analyses.	The effectiveness of calcium supplements and Ambon bananas on blood pressure changes in pregnant women with gestational hypertension. (p-value 0.005)
7	Nurjannah Supardi (2022)	The effectiveness of bananas in reducing diastolic blood pressure in pregnant women at Baruga Community Health Center	<i>Pre-Experimental</i>	15 pregnant women in their second and third trimesters who experienced mild hypertension or preeclampsia (without medication)	The instruments used were Standard Operating Procedures (SOPs) and observation sheets before and after treatment. Pregnant women had their blood pressure measured before treatment, then routinely consumed Kepok bananas three times a day, morning, afternoon, and evening, for 7 days, and then their blood pressure was measured again. Data were analyzed using a T-test with a significance level of $p < 0.05$.	Bananas are effective in lowering blood pressure in pregnant women. (<i>p value 0.000</i>)
8	Nurul Hidayah (2021)	The effectiveness of Ambon bananas on blood pressure in hypertensive pregnant women.	<i>Quasi Experimental</i>	There were 15 pregnant women who underwent ANC and experienced hypertension.	The sampling technique used consecutive sampling with a sample of 15 pregnant women. This study was conducted at the Sarinah Primary Clinic in Pekanbaru from October 2020 to June 2021. Data analysis used univariate and bivariate methods using the Paired Sample T-Test.	Ambon bananas are effective in reducing hypertension in pregnant women. (p=0.000)
9	Intan Nugraheni Hasanah (2022)	The effectiveness of giving Ambon bananas with tomato juice to reduce blood pressure in pregnant women with hypertension	<i>Pre-Experimental</i>	34 pregnant women with hypertension for the treatment and control groups	The sampling technique used consecutive sampling. The research instruments used were a digital tensiometer and a checklist.	Differences in the effectiveness of lowering systolic and diastolic blood pressure were found due to differences in potassium and antioxidant content in Ambon bananas and tomato juice. (p=0.001)
10	Nurleny (2024)	The effect of Ambon banana (Musa paradisiaca var) on blood pressure in hypertension sufferers in Andalas sub-district, working area of Andalas Padang Health Center	<i>Quasi Experimental</i>	There were 10 respondents who had high blood pressure	The data collected in this study was quantitative by measuring blood pressure in respondents before and after consuming Ambon bananas, all pre-test and post-test data, data from blood pressure measurements were collected using 2 observation sheets, namely the intervention provision sheet, the observation sheet.	There is a difference in the average MAP of blood pressure before and after giving Ambon bananas (Musa Paradisiaca Var) to blood pressure in hypertension sufferers in Andalas Village, Andalas Padang Health Center working area (p=0.002)
11	Rahia Rahman Adam (2025)	Comparative study of the effectiveness of consuming melon and banana in	<i>Quasi Experimental</i>	32 pregnant women with hypertension were divided into 2 groups: melon and banana.	The study began with a pre-test questionnaire to collect baseline data from pregnant women and measure their	There are differences in the consumption of melon and banana. Melon is more effective than banana in

		lowering blood pressure in pregnant women			initial blood pressure levels. Afterward, a four-week intervention was conducted, with the experimental group consuming melons and the control group consuming bananas. Following the intervention period, a post-test questionnaire was administered, and follow-up blood pressure measurements were taken to assess changes in the participants' health status.	lowering blood pressure in pregnant women, although both have been shown to be effective in lowering blood pressure in pregnant women with hypertension. (melon $p=0.016$ and banana $p=0.035$)
12	Wiwin Haryati (2025)	The application of giving Ambon bananas to lower blood pressure in hypertension sufferers.	Case study	There were 2 patients who had grade 1 hypertension	This study used several instruments, namely consent sheets, assessment sheets, observation sheets, SOPs for measuring blood pressure, assessments, observation sheets, SOPs for measuring blood pressure, and SOPs for administering Ambon bananas.	Giving Ambon bananas before breakfast for 7 consecutive days is effective in lowering blood pressure, where in subject I, blood pressure before therapy was 140/90 mmHg, it dropped to 130/60 mmHg and in subject II, before therapy, it was 150/90 mmHg, it dropped to 130/70 mmHg.
13	Muhammad Rizky Ramadhan (2021)	The effect of consuming Ambon bananas (<i>Musa paradisiaca</i>) on reducing blood pressure in hypertension patients at the South Bontang Community Health Center	Quasi Experimental	There were 15 respondents with hypertension who met the inclusion criteria.	This study was conducted for 10 days on two groups: the control group for 5 days and the treatment group for 5 days. Ambon bananas were only given to the treatment group, consuming two Ambon bananas daily for 5 days. The control group was not given Ambon bananas. A pre-test was conducted on both groups to determine the respondents' initial blood pressure. Both groups of respondents were evaluated and educated daily throughout the study to monitor blood pressure, record eating patterns, and remind respondents to avoid consuming foods or drinks that could affect blood pressure. After 5 days, a post-test was conducted on both groups of respondents to compare the results of blood pressure reduction during the study between the treatment group and the control group.	Ambon banana consumption as a supplement helps lower both systolic and diastolic blood pressure in hypertension patients at the South Bontang Community Health Center (systolic $p=0.001$, diastolic $p=0.020$).
14	Princess Agustianingrum (2020)	The effect of giving Ambon banana (<i>Musa paradisiaca</i> var. <i>sapientum</i> Linnaeus) on reducing blood pressure in hypertension sufferers.	Quasi Experimental	There were 30 respondents with hypertension who were divided into 2 groups, intervention and control.	The sampling technique in this study used purposive sampling based on inclusion criteria. The instruments used in this study were an observation sheet containing the respondents' identities and pre- and post-test blood pressure measurements, a calibrated sphygmomanometer, a stethoscope, and Ambon bananas. The study was	There is an effect of giving Ambon bananas on reducing blood pressure in hypertension sufferers in the Villa Balaraja Housing Complex, RT 010 RW 005. ($p=0.000$)

						conducted over a seven-day period.	
15	Leni Tri Wahyuni (2019)	The effect of consuming Ambon bananas (<i>Musa paradisiaca</i> s) on reducing blood pressure in hypertension sufferers in Kubu Marapalam sub-district, Andalas Padang Health Center working area.	Quasi Experimental	There were 15 respondents who had high blood pressure	15	The sample in this study was 15 respondents, using a purposive sampling technique, which was based on certain considerations made by the researcher himself. The data analysis technique was carried out using a university analysis to determine the average value of the independent variables, both systolic and diastolic blood pressure, so that the distribution of blood pressure before and after consuming Ambon bananas was known. This was followed by research analysis.	There is an effect of consuming Ambon bananas on reducing blood pressure in hypertension patients in Kubu Marapalam Village, Andalas Padang Health Center Working Area (p=0.000)
16	Sudirman Efendi (2023)	<i>The effect of therapy of banana types of musa paradisiaca var Sapientum linn on reducing systole and diastole blood pressure in hypertension patients</i>	Quasi Experimental	There were 16 respondents who had recently been diagnosed with hypertension.	16	The intervention of giving Ambon bananas was carried out for 14 days with a frequency of three times a day, one fruit (± 140 grams) in the morning (08.00), afternoon (12.00) and evening (6.00). The tools and materials used in this study were Ambon bananas, ATS brand cake scales, banana storage boxes, and observation sheets. Bananas were first weighed using a scale, and blood pressure was measured using an Omron brand Digital Tension.	Ambon banana consumption intervention was effective in lowering blood pressure. Systolic p-value = 0.001, diastolic p-value = 0.008
17	Fara Berlina (2024)	<i>The effect of giving ambon banana (musa paradisiaca var sapientum linn) on blood pressure among pregnant mothers with hypertension</i>	Pre-Experimental	There were 35 respondents with hypertension	35	The research instruments used were a digital blood pressure measuring device to measure the blood pressure of pregnant women, an observation sheet to monitor pretest and posttest blood pressure, and a digital scale to weigh Ambon bananas.	There is an effect of giving Ambon bananas (<i>Musa paradisiaca</i> var <i>sapientum</i> linn) on blood pressure in pregnant women with hypertension at Pakuhaji Regional Hospital (p = 0.000)
18	Thika Marliana (2024)	<i>Effectiveness of ambon banana juice for reducing blood pressure among hypertension patients in Indonesia</i>	Quasi Experimental	There were 18 respondents with hypertension who met the inclusion criteria.	18	The instruments used in this study were blood pressure monitors, both digital and mercury, stethoscopes, pens, and observation sheets. Meanwhile, the tools used during the intervention were the standard operating procedure (SOP) for making Ambon banana juice. The materials and tools used included 100g of Ambon bananas, $\pm$ ml of water, a blender, a knife, a glass/cup, and a measuring cylinder.	There is a significant difference between systolic blood pressure before and after giving Ambon banana juice to hypertension sufferers (p = 0.001), and diastolic (p = 0.000)
19	Zuhrotunida (2025)	<i>Ambon Banana (Musa acuminata) Consumption and Its Effect on Gestational Hypertension Among Pregnant Women</i>	Pre-Experimental	There were 31 pregnant women with gestational hypertension.	31	Blood pressure measurements were taken one day before the intervention (pre-test). Each participant then consumed 200 grams of	Consumption of Ambon bananas significantly reduced systolic and diastolic blood pressure in pregnant women with gestational hypertension.

						ripe Ambon bananas daily for seven days, under supervision to ensure compliance. After the intervention, blood pressure was measured again on the seventh day (post-test).	Systolic (p = 0.0001) and diastolic (p = 0.0005)
20	Sjenny Olga Tuju (2023)	<i>Effect of Giving Kepok Banana Fruit (Musa Acuminata X Balbisiana) against Blood Pressure Reduction in Pregnant Mothers Trimester II</i>	<i>Pre-Experimental</i>	There are 15 pregnant women who experience hypertension	The instruments used to collect data were observation using an observation sheet, after administering banana kepok for 14 days, and a sphygmomanometer. Data analysis used a non-parametric test, namely the paired Wilcoxon test.	There is an effect of giving Ambon bananas on reducing systolic and diastolic blood pressure in pregnant women before and after giving Ambon bananas in the treatment group (p = 0.031)	

Discussion

1. Types of Research and Data Analysis

Based on the results of the literature review on 20 journals, it was found that the types of research used were mostly quasi-experimental (11 journals), pre-experimental (6 journals), and case studies (3 journals). The data analysis used included the Wilcoxon test (7 journals), paired test (6 journals), independent sample test (3 journals), case studies (3 journals), and Mann-Whitney test (1 journal).

2. Respondent Characteristics

Based on the results of a literature review of 20 journals, the research sample consisted entirely of individuals with high blood pressure. Sampling techniques used included random sampling or total population sampling. A case study also involved two respondents, measuring their blood pressure and comparing them with those without intervention.

3. Intervention Characteristics

Based on the results of a literature review of 20 journals on lowering blood pressure in pregnant women, the intervention provided was banana therapy with different variants: Ambon bananas in 15 journals, Kepok bananas in 4 journals, and 1 journal that did not mention the type of banana used. The banana intervention conducted by 16 journals conducted studies without a comparison, while the other 4 used comparators such as warm water, calcium supplements, tomatoes, and melon. The amount of banana consumption was 100-150 grams consumed 2-3 times per day for 5-14 days, consumed directly or made into juice.

4. Instrument Characteristics

Based on the results of a literature review of 20 journals, the instruments used to measure blood pressure were all observation sheets and blood pressure measuring devices or sphygmomanometers which were measured before and after the intervention of giving bananas.

5. Research Data Extraction

- a. Research 1 (The effect of giving Ambon bananas as additional therapy to reduce blood pressure in pregnant women with gestational hypertension)(Khaerunissa, 2025)

This study used a quasi-experimental method with a two-group pretest-posttest control group design to compare the effectiveness of a combination of Ambon banana and antihypertensive medication (nifedipine) versus the antihypertensive medication alone in pregnant women with gestational hypertension. The treatment group consumed 100 grams of Ambon banana twice daily for 14 days, with blood pressure measured on the first and 14th days.

The results showed that the combination of Ambon banana and nifedipine reduced systolic blood pressure by 21.25 mmHg and diastolic blood pressure by 9.375 mmHg. Meanwhile, the control group experienced a decrease in systolic blood pressure of 10.00 mmHg and diastolic blood pressure of 5.00 mmHg. The Wilcoxon test showed that the combination of Ambon banana and antihypertensive medication effectively reduced blood pressure in pregnant women with gestational hypertension.

- b. Research 2 (Effectiveness of giving Ambon bananas to reduce blood pressure in pregnant women in the first trimester who are at risk of pre-eclampsia)(Nanda, 2025)

This study used a quasi-experimental design with a case-control approach in 72 pregnant women in their first trimester at risk of preeclampsia. The sample was divided into two groups: 36 in the intervention group and 36 in the control group. The intervention group was given 150 grams of ripe Ambon banana twice daily for two weeks, while the control group received no treatment.

The results showed that after the intervention, the majority of blood pressure in the intervention group (94.4%) was in the non-risk category. The Wilcoxon test showed a p-value of 0.000 (<0.05), indicating that the administration of Ambon bananas significantly reduced the risk of blood pressure in pregnant women. The researchers concluded that Ambon bananas are beneficial in helping lower blood pressure due to their high potassium content and are safe for consumption by pregnant women.

- c. Research 3 (Consumption of kepok bananas (*musa acuminata*) in pregnant women to reduce blood pressure in gestational hypertension)(DP Sari, 2022)

This study used a pre-experimental method with an intact-group comparison design in pregnant women with gestational hypertension in the Kabil Community Health Center (Puskesmas) area of Batam City. Respondents were divided into two groups: an experimental group given Kepok bananas and a control group with no treatment. The intervention consisted of consuming two Kepok bananas daily.

The results showed that the average systolic blood pressure of respondents decreased to 132 mmHg with a p-value of 0.042 (<0.05), thus the administration of kepok bananas was declared effective in lowering blood pressure in pregnant women with gestational hypertension. Researchers concluded that the high potassium content in kepok bananas plays a role in helping blood vessel vasodilation and lowering blood pressure.

- d. Study 4 (Effectiveness of consuming kepok bananas to lower blood pressure in pregnant women with gestational hypertension)(Dhitya, 2025)

This study used a qualitative descriptive design with a case study approach in two third-trimester pregnant women with gestational hypertension in Way Bungur District, East Lampung Regency. The intervention consisted of administering one Kepok banana per day for three consecutive days. Data were obtained through interviews, observations, and blood pressure measurements before and after the intervention.

The results of the study showed a decrease in blood pressure in both respondents after consuming kepok bananas. In Mrs. E, blood pressure decreased from 160/90 mmHg to 120/80 mmHg, while in Mrs. P, it decreased from 170/90 mmHg to 140/90 mmHg. The researchers concluded that consuming kepok bananas can be a simple, safe, and effective supportive therapy in helping lower blood pressure in pregnant women with gestational hypertension.

e. Research 5 (The effect of warm water and Ambon banana therapy on reducing hypertension in pregnant women at Pagelaran Regional Hospital, Cianjur Regency in 2023)(Herawati, 2024)

This study used a qualitative method with a case study approach on hypertensive pregnant women at Pagelaran Regional Hospital, Cianjur Regency, from December 2023 to January 2024. The study compared the effectiveness of warm water foot soak therapy and Ambon banana consumption in reducing blood pressure in pregnant women.

The study results showed that consuming Ambon bananas resulted in a greater reduction in blood pressure than warm water foot soak therapy. In the Ambon banana group, blood pressure decreased from 150/90 mmHg to 120/80 mmHg, while in the warm water therapy group, it decreased from 150/90 mmHg to 145/80 mmHg. The researchers concluded that consuming Ambon bananas is more effective in helping lower blood pressure in pregnant women with hypertension.

f. Research 6 (Effectiveness of providing calcium supplements and Ambon bananas on changes in blood pressure in pregnant women with gestational hypertension)(Evitasari, 2020)

This study used a pre-experimental method with a comparative design to compare the effectiveness of a combination of calcium supplements and Ambon bananas with calcium supplements alone in pregnant women with gestational hypertension. The study sample consisted of 30 pregnant women divided into two groups of 15 respondents each. The experimental group was given a combination of calcium supplements and Ambon bananas for one week, while the control group was given only calcium supplements.

The results showed that the average reduction in blood pressure in the experimental group was 15.3 mmHg, higher than the control group's 5.3 mmHg. The Wilcoxon and Mann-Whitney tests showed a p-value <0.05, indicating that the combination of Ambon bananas and calcium supplements was more effective in lowering blood pressure in pregnant women with gestational hypertension than calcium supplements alone.

g. Research 7 (Effectiveness of bananas in reducing diastolic blood pressure in pregnant women at Baruga Community Health Center)(Supardi, 2022)

This study used a pre-experimental method with a one-group pretest-posttest approach on 15 pregnant women with mild hypertension or preeclampsia in their second and third trimesters at the Baruga Community Health Center in Bantaeng Regency. Respondents consumed kepok bananas three times daily for seven days, and their blood pressure was measured before and after the intervention.

The results of the study showed that consuming bananas effectively lowers blood pressure in pregnant women. The average decrease in diastolic blood pressure was 6.533 mmHg, with a p-value of 0.000 (<0.05), making it statistically significant. The researchers concluded that the high potassium and low salt content of Ambon bananas play a role in helping lower blood pressure in hypertensive pregnant women.

h. Research 8 (Effectiveness of Ambon bananas on blood pressure in hypertensive pregnant women)(Hidayah, 2021)

This study used a quantitative method with a quasi-experimental design on 15 pregnant women with hypertension selected using consecutive sampling. The experimental group was given 200 grams of Ambon bananas per day for seven days to determine their effect on lowering blood pressure.

The results of the study showed that administering Ambon bananas effectively reduced blood pressure in hypertensive pregnant women, with a p-value of 0.000 (<0.05). Twelve respondents experienced a decrease in blood pressure after the intervention. The researchers concluded that regular consumption of Ambon bananas could be a non-pharmacological alternative to help control hypertension in pregnant women.

i. Research 9 (Effectiveness of giving Ambon bananas with tomato juice on reducing blood pressure in pregnant women with hypertension)(Nugraheni, 2022)

This study used an experimental method with a pretest-posttest control group design in pregnant women with hypertension in Semarang Regency. The study sample consisted of 68 respondents divided into treatment and control groups using consecutive sampling. The treatment group was given Ambon bananas, while the control group was given tomato juice.

The results of the independent t-test showed a p-value of 0.001 (<0.05) for systolic and diastolic blood pressure, indicating that consuming Ambon bananas was more effective in lowering blood pressure than tomato juice in hypertensive pregnant women. Researchers concluded that the potassium and antioxidant content in Ambon bananas played a greater role in helping lower both systolic and diastolic blood pressure.

j. Research 10 (The effect of Ambon banana (*Musa paradisiaca* var) on blood pressure in hypertension sufferers in Andalas sub-district, working area of Andalas Padang Health Center)(Nurleny, 2024)

This study used a quasi-experimental method with a one-group pre-post test design on 10 hypertension patients in the Andalas Padang Community Health Center area. Respondents' blood pressure was measured before and after the intervention, which included consuming Ambon bananas, and then analyzed using the Wilcoxon test due to the non-normal distribution of the data.

The results showed a decrease in blood pressure after consuming Ambon bananas, with a mean difference of 15.75 and a p-value of 0.002 (<0.05). These results demonstrate that Ambon bananas are effective in lowering blood pressure. Researchers concluded that the potassium content in Ambon bananas plays a role in inhibiting the renin-angiotensin system, increasing diuresis, and helping lower blood pressure.

k. Study 11 (Comparative study of the effectiveness of consuming melon and banana in lowering blood pressure in pregnant women)(Adam, 2025)

This study used a quasi-experimental method with a two-group pretest-posttest design to compare the effectiveness of melon and banana on lowering blood pressure in hypertensive pregnant women. The study sample consisted of 32 respondents, divided into two groups using purposive sampling. Data were collected through blood pressure measurements before and after the intervention, then analyzed using the Mann-Whitney test.

The study results showed that melon was more effective than bananas in lowering blood pressure, although both were shown to be effective in pregnant women with hypertension. Researchers concluded that regular consumption of melon and banana may help control blood pressure during pregnancy due to their potassium, fiber, and antioxidant content.

l. Research 12 (Application of giving Ambon bananas to reduce blood pressure in hypertension sufferers)(Haryati, 2025)

This research used a descriptive method with a case study approach to determine the effectiveness of administering Ambon bananas in lowering blood pressure in hypertensive patients. Data were obtained through interviews, observations, and physical examinations using instruments such as assessment sheets, observation sheets, and standard operating procedures (SOPs) for blood pressure measurement and administering Ambon bananas.

The results of the study showed that consuming Ambon bananas for seven consecutive days was able to lower blood pressure in both subjects. Subject I's blood pressure decreased from 140/90 mmHg to 130/60 mmHg, while subject II's blood pressure decreased from 150/90 mmHg to 130/60 mmHg. The researchers concluded that regular consumption of Ambon bananas is effective in helping lower blood pressure in people with hypertension.

m. Research 13 (The effect of consuming Ambon bananas (*Musa paradisiaca*) on reducing blood pressure in hypertension patients at the South Bontang Community Health Center)(Ramadan, 2021)

This study used a quasi-experimental method with a nonequivalent control group design on 30 hypertension patients in the South Bontang Community Health Center (Puskesmas) area. The sample was divided into treatment and control groups using a purposive sampling technique. The treatment group was given two Ambon bananas per day for five days along with antihypertensive medication, while the control group only took antihypertensive medication.

The results showed that the treatment group experienced an average reduction in systolic blood pressure of 14.67 mmHg and diastolic blood pressure of 4.67 mmHg. Meanwhile, the control group experienced only a 2.67 mmHg decrease in systolic blood pressure and no decrease in diastolic blood pressure. The researchers concluded that consuming Ambon bananas as an adjunct therapy is effective in lowering blood pressure due to their potassium content, which inhibits the renin-angiotensin system and reduces sodium and fluid retention.

n. Research 14 (The effect of giving Ambon bananas (*Musa paradisiaca* var. *sapientum* Linnaeus)) on reducing blood pressure in hypertension sufferers)(Agustianingrum, 2020)

This study used a quasi-experimental method with a nonrandomized control group pretest-posttest design to determine the effect of Ambon banana consumption on blood pressure in hypertensive patients. The intervention group was given two Ambon bananas (approximately 280 grams) daily for seven days, while the control group received no intervention. The study sample consisted of 30 respondents in the intervention group and 15 respondents in the control group, selected using purposive sampling.

The results showed that administering Ambon bananas significantly reduced blood pressure, with a p-value of 0.000 (<0.05). The average baseline blood pressure in the intervention group was 154/104 mmHg, while in the control group it was 152/106 mmHg. The researchers concluded that the potassium content in Ambon bananas helps lower and stabilize blood pressure through angiotensin-converting enzyme (ACE) inhibition.

o. Research 15 (The effect of consuming Ambon bananas (*Musa paradisiaca sapientum*) on reducing blood pressure in hypertension sufferers in Kubu Marapalam sub-district, Andalas Padang Health Center working area)(Wahyuni, 2019)

This study used a quasi-experimental method with a one-group pretest-posttest design on 15 hypertension patients in Kubu Marapalam Village, within the Andalas Padang Community Health Center. Respondents were selected using purposive sampling, and blood pressure measurements were taken before and after administering Ambon bananas to determine changes in blood pressure.

The results showed that consuming Ambon bananas effectively lowered blood pressure, with a p-value of 0.000 (<0.05). The average reduction in systolic and diastolic blood pressure was 9.667 mmHg each. The researchers concluded that the potassium content in Ambon bananas plays a role in helping lower blood pressure in people with hypertension.

p. Study 16 (The effect of therapy of banana types of *musa paradisiaca* var *Sapientum* linn on reducing systole and diastole blood pressure in hypertension patients)(Efendi, 2023)

This study used a quasi-experimental method with a one-group pretest-posttest design on 16 hypertension patients in the Pallangga Community Health Center (Puskesmas) area. Respondents were given an intervention of consuming Ambon bananas for 14 days, three times daily, each time (approximately 140 grams). Blood pressure was measured before and after the intervention using a digital sphygmomanometer.

The results showed that consuming Ambon bananas effectively lowered blood pressure. The average systolic blood pressure decreased by 19.75 mmHg and diastolic by 4.813 mmHg. A paired t-test showed a p-value of 0.001 for systolic and 0.008 for diastolic blood pressure (<0.05), indicating that the intervention was significant. The researchers concluded that the potassium content in Ambon bananas helps vasodilate blood vessels and lower blood pressure in people with hypertension.

q. Study 17 (The effect of giving ambon banana (*musa paradisiaca* var *sapientum* linn) on blood pressure among pregnant mothers with hypertension)(Berliana et al., 2024)

This study used a quantitative method with a pre-experimental one-group pretest-posttest design to determine the effect of Ambon banana consumption on blood pressure in hypertensive pregnant women. The study was conducted at the Obstetrics Polyclinic of Pakuhaji Regional Hospital, Tangerang Regency, from October to December 2023, with a sample of 35 pregnant women with hypertension in their second and third trimesters. Respondents were given Ambon bananas twice daily for 7 days. The research instruments were a digital sphygmomanometer, observation sheets, and digital scales. Data analysis used a paired t-test.

The results showed that the average blood pressure before the intervention was 159.54/102.89 mmHg and after the intervention decreased to 141.57/86.80 mmHg. Statistical tests showed a p-value of 0.000, indicating a significant effect of Ambon banana administration on reducing blood pressure in hypertensive pregnant women.

Researchers assume that the high potassium content in Ambon bananas plays a role in lowering blood pressure because it works similarly to the effects of antihypertensive drugs and helps the diuretic process in the body.

r. Study 18 (Effectiveness of ambon banana juice for reducing blood pressure among hypertension patients in Indonesia)(Thika Marlina, 2025)

This study was a quasi-experimental study with a single-group pretest-posttest design on 18 hypertensive patients from a population of 156 people. The intervention was Ambon banana

juice (± 100 g without sugar) given once a day for 5 days. Blood pressure was measured before and after the intervention, then analyzed using SPSS with statistical tests at a significance level of ≤ 0.05 .

The results showed a significant decrease in systolic and diastolic blood pressure after the intervention ($p < 0.05$), so that Ambon banana juice was declared effective in lowering blood pressure in hypertension sufferers.

s. Research 19 (Ambon Banana (*Musa acuminata*) Consumption and Its Effect on Gestational Hypertension Among Pregnant Women)(Zuhrotunida, 2025)

This quasi-experimental study used a single-group pretest–posttest design in 31 pregnant women with gestational hypertension at the Jalan Emas Community Health Center in Tangerang Regency. The intervention consisted of consuming 200 grams of Ambon bananas per day for 7 days. Blood pressure was measured before and after the intervention using a digital sphygmomanometer, then analyzed using a paired t-test.

The results showed a significant decrease in blood pressure after the intervention, namely systolic from 147.2 to 127.0 mmHg ($p = 0.0001$) and diastolic from 94.2 to 83.4 mmHg ($p = 0.0005$). However, because there was no control group, the results should be interpreted with caution as they may be influenced by factors other than the Ambon banana intervention.

t. Research 20 (Effect of Giving Kepok Banana Fruit (*Musa Acuminata* X *Balbisiana*) against Blood Pressure Reduction in Pregnant Mothers Trimester II)(Towards 2023)

This study was a single-group pretest–posttest quasi-experimental study involving 31 pregnant women with gestational hypertension. The intervention consisted of consuming 200 grams of Ambon bananas daily for 7 days, with blood pressure measurements before and after treatment.

The results showed a significant decrease in blood pressure (systolic 147.2 $\rightarrow$ 127.0 mmHg; diastolic 94.2 $\rightarrow$ 83.4 mmHg; $p < 0.05$), so Ambon bananas were declared to have an effect in lowering blood pressure.

u. Research Synthesis

These studies were conducted to determine the effect of using bananas (*Musa paradisiaca*) as a non-pharmacological therapy to lower blood pressure in pregnant women with hypertension.

Based on the results of a literature review of 20 journals, it was found that the type of research used was mostly quasi-experimental (11 journals), pre-experimental (6 journals), and case studies (3 journals). The research samples were all respondents suffering from high blood pressure. Sampling techniques used included random sampling or total population, and there was also a case study type that took 2 respondents as research material by measuring blood pressure and comparing them with respondents without intervention. The intervention provided was banana fruit therapy with different variants, namely Ambon bananas (15 journals), Kepok bananas (4 journals), and 1 journal that did not mention the type of banana used. Carrying out banana interventions, there were studies that conducted research without a comparison (16 journals), while the other 4 used comparisons such as warm water, calcium supplements, tomatoes, and melons.

Based on the 20 journals mentioned above, the First Article from Dymphna Sabilla Khaerunissa (2025) on "The Effect of Giving Ambon Bananas as Additional Therapy on Reducing Blood Pressure in Pregnant Women with Gestational Hypertension in the Kuningan Regency Work Area" has a very strong closeness to the research described above.

Overall, the articles discussed, this first article has very relevant similarities with the cited research, both the intervention given is the type of banana, the population sample is pregnant women with a pretest and posttest design given twice a day in the morning and evening until the 14th day, this study was conducted to see the difference between the treatment group given antihypertensive drugs plus Ambon bananas and the control group which was only given antihypertensive drugs.

From the results of this article, it can be concluded that banana consumption has a significant effect on lowering blood pressure in people with hypertension, especially pregnant women. The high potassium content in bananas functions to neutralize sodium, increase vasodilation (widening of blood vessels), and help lower systolic and diastolic blood pressure. Daily banana consumption has been shown to significantly lower systolic and diastolic blood pressure in pregnant women with gestational hypertension. The high potassium content in bananas neutralizes sodium, reduces blood vessel stiffness, and acts as an effective non-pharmacological therapy.

CONCLUSION

Based on a literature review of 20 studies on the effect of banana (*Musa paradisiaca*) consumption on lowering blood pressure in pregnant women with hypertension, it can be concluded that most studies show a positive effect of banana consumption on reducing systolic and diastolic blood pressure. The dominant type of research used was a quasi-experimental study with a pretest-posttest design, both with and without a control group. The intervention generally consisted of consuming Ambon bananas or Kepok bananas at a dose of around 100–200 grams per day for 5 to 14 days. The results consistently showed a statistically significant decrease in blood pressure, which is thought to be related to the potassium content in bananas, which helps with vasodilation and regulates sodium balance in the body.

However, these studies faced several limitations, such as relatively small sample sizes, short intervention durations, variations in banana types and dosages, and differences in study designs. Furthermore, not all studies used a control group, thus potentially introducing bias and confounding factors. Therefore, future research is recommended to employ a randomized controlled trial design with a larger sample size, a longer intervention duration, and standardization of the dosage and type of banana used to achieve stronger and more generalizable results. Practically, banana consumption can be considered as a complementary non-pharmacological therapy in the management of hypertension in pregnant women, but it should still be combined with medical monitoring and treatment as recommended by healthcare professionals.

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