



The effectiveness of bay leaf extract (*Syzygium polyanthum* (Wight) Walp.) as a local food-based nutritional therapy to reduce hypertension in pregnant women

Efektifitas ekstrak daun salam (Syzygium polyanthum (Wight) Walp.) sebagai terapi nutrisi berbasis makanan lokal dalam menurunkan hipertensi pada ibu hamil

Minarti^{1*}, Wa Ode Nesya Jeni Samrida², Sitti Aisyah Ansi³

¹ Diploma Three in Midwifery, Politeknik Baubau, Baubau City, Sulawesi Tenggara, Indonesia.

E-mail: minartimili11@gmail.com

² Diploma Three in Midwifery, Politeknik Baubau, Baubau City, Sulawesi Tenggara, Indonesia.

E-mail: minartimili11@gmail.com

³ Diploma Three in Midwifery, Politeknik Baubau, Baubau City, Sulawesi Tenggara, Indonesia. E-mail: ansiaisyah@gmail.com

*Correspondence Author:

Diploma Three in Midwifery, Politeknik Baubau, Baubau City, Sulawesi Tenggara, Indonesia.

E-mail: minartimili11@gmail.com

Article History:

Received: June 02, 2026; Revised: June 12, 2026; Accepted: June 16, 2026; Published: June 25, 2026.

Publisher:



Politeknik Kesehatan Aceh
Kementerian Kesehatan RI

© The Author(s). 2026 **Open Access**

This article has been distributed under the terms of the *License Internasional Creative Commons Attribution 4.0*



Abstract

Hypertension during pregnancy requires timely management because it can compromise maternal and fetal health. Local food-based plant preparations are often used as complementary approaches, but evidence of their measurable effects on blood pressure in pregnant women remains limited. This study examined changes in systolic and diastolic blood pressure before and after seven days of treatment with *Syzygium polyanthum* (Wight) Walp. decoction in pregnant women with hypertension. Methods: A quasi-experimental one-group pretest-posttest study was conducted from June to July 2025 in the working area of the Sulaa Primary Health Center, Baubau City, Indonesia. Twenty pregnant women with hypertension, defined as blood pressure $\geq 140/90$ mmHg, were selected using purposive sampling method. The participants received *S. polyanthum* decoction for seven days. Systolic and diastolic blood pressures were measured before and after the intervention. Data were analyzed using paired sample t-tests. The mean systolic blood pressure decreased from 143.50 ± 2.33 mmHg to 133.95 ± 2.11 mmHg, with a mean reduction of 9.55 mmHg ($p < 0.001$). The mean diastolic blood pressure decreased from 94.45 ± 1.50 mmHg to 88.60 ± 2.72 mmHg, with a mean reduction of 5.85 mmHg ($p < 0.001$). In conclusion, a seven-day administration of *S. polyanthum* decoction was followed by lower systolic and diastolic blood pressure in this one-group study. The decoction may be considered a complementary local food-based approach to support blood pressure management in pregnant women with hypertension; however, randomized controlled studies are needed to confirm its effectiveness and safety.

Keywords: Blood pressure, complementary therapies, hypertension, pregnancy-induced, pregnant women, *syzygium*

Abstrak

Hipertensi gestasional adalah kondisi medis umum pada wanita hamil dan dapat menimbulkan risiko serius bagi kesehatan ibu dan janin. Studi ini bertujuan untuk menganalisis perbedaan tekanan darah sebelum dan setelah pemberian rebusan *Syzygium polyanthum* (Wight) Walp. sebagai intervensi nutrisi berbasis makanan lokal pada wanita hamil dengan hipertensi. Studi kuasi-eksperimental satu kelompok pretest-posttest dilakukan dari Juni hingga Juli 2025 yang melibatkan 20 wanita hamil dengan hipertensi (tekanan darah $\geq 140/90$ mmHg) di wilayah kerja Puskesmas Sulaa, Kota Baubau. Partisipan dipilih menggunakan purposive sampling. Data dianalisis menggunakan uji t berpasangan. Tekanan darah sistolik rata-rata menurun dari $143,50 \pm 2,33$ mmHg menjadi $133,95 \pm 2,11$ mmHg, dengan perbedaan rata-rata 9,55 mmHg (p

< 0,001). Tekanan darah diastolik rata-rata menurun dari $94,45 \pm 1,50$ mmHg menjadi $88,60 \pm 2,72$ mmHg, dengan perbedaan rata-rata 5,85 mmHg ($p < 0,001$). Temuan ini menunjukkan bahwa tingkat tekanan darah yang lebih rendah diamati setelah tujuh hari pemberian rebusan *Syzygium polyanthum*. Kesimpulan, rebusan *Syzygium polyanthum* berpotensi sebagai intervensi nutrisi berbasis makanan lokal komplementer untuk mendukung pengelolaan tekanan darah pada ibu hamil dengan hipertensi. Namun, studi terkontrol acak lebih lanjut diperlukan untuk mengkonfirmasi efektivitas dan keamanannya.

Kata Kunci: Hipertensi, nutrisi berbasis makanan lokal, *syzygium polyanthum*, terapi herbal, wanita hamil

Introduction

Hypertensive disorders during pregnancy remain a major cause of maternal and perinatal morbidity and mortality worldwide. These disorders include gestational hypertension, preeclampsia, and eclampsia, which may lead to serious complications for both the mother and fetus if not properly monitored and managed (Arikah et al., 2020). Hypertensive disorders contribute to approximately 14% of maternal deaths worldwide (Jiang et al., 2022). Severe preeclampsia may be associated with organ dysfunction, preterm birth, fetal growth restriction, and an increased risk of maternal and neonatal mortality (Veri et al., 2024). Therefore, appropriate management of hypertension during pregnancy is essential to support maternal and fetal health outcomes.

In Indonesia, hypertension during pregnancy continues to be an important public health concern and is recognized as a contributor to maternal and infant mortality (Ekawati et al., 2020). Current management mainly involves pharmacological antihypertensive therapy when clinically indicated. Although antihypertensive medications are clinically useful, their use during pregnancy requires careful consideration because of potential adverse effects, treatment adherence issues, accessibility, and safety concerns for both the mother and fetus (Febrianti, 2022). These challenges have encouraged interest in complementary, affordable, and culturally acceptable approaches that may support blood pressure management during pregnancy without replacing standard medical care (Liu et al., 2021).

Nutrition is also relevant for the prevention and management of gestational hypertension and preeclampsia. Nutritional status and dietary patterns may influence

oxidative stress, inflammatory responses, and endothelial function, which are involved in the pathophysiology of hypertensive disorders during pregnancy (Kinshella et al., 2022). Previous studies have reported that diets rich in fruits, vegetables, whole grains, legumes, fish, fiber, and potassium are associated with a lower risk of gestational hypertension and of preeclampsia. In contrast, diets high in saturated fat, sugar, and sodium may be associated with an increased risk of developing these diseases (Perry et al., 2022). Accordingly, local food resources containing bioactive compounds may offer practical and sustainable complementary options to support maternal nutrition and blood pressure control during pregnancy (Yi et al., 2024).

One potential local food resource is the Indonesian bay leaf, *Syzygium polyanthum* (Wight) Walp., a traditional culinary spice widely used in Indonesian communities. Previous studies have reported that *S. polyanthum* contains several bioactive compounds, including flavonoids, tannins, saponins, and phenolic compounds, which possess antioxidant, anti-inflammatory, and potential antihypertensive properties (Haryanto et al., 2023; Sabandar et al., 2022). Experimental and clinical studies suggest that these compounds may support blood pressure regulation through vasodilation, modulation of vascular tone, reduction of oxidative stress, and improvement of endothelial function (Susaldi et al. 2023). These mechanisms are relevant because oxidative stress and endothelial dysfunction play important roles in hypertensive disorders during pregnancy (Kinshella et al., 2022).

Despite the growing evidence of the antihypertensive potential of *S. polyanthum* in the general adult population, evidence regarding its use in pregnant women remains limited. Most

previous studies have focused on adults with essential hypertension and other chronic conditions. Studies specifically evaluating changes in blood pressure in pregnant women with hypertension are scarce. In addition, information on the use of *S. polyanthum* as a local food-based nutritional intervention during pregnancy remains insufficient. This evidence gap is important because pregnant women require careful assessment before any complementary interventions can be recommended alongside conventional care.

Bay leaf decoction is a simple traditional preparation that is inexpensive, easy to prepare, and culturally familiar to Indonesian communities (Susaldi et al., 2023). As a food-based herbal preparation, it may serve as a practical complementary approach in community and primary healthcare settings. However, its potential role in blood pressure management among pregnant women with hypertension requires further evaluation. Therefore, this study aimed to analyze the differences in blood pressure before and after the administration of *S. polyanthum* decoction and to evaluate its potential as a local food-based nutritional intervention among pregnant women with hypertension.

Methods

This study used a quasi-experimental design with a one-group pre-test-post-test approach. The study was conducted from June to July 2025 in the working area of the Sulaa Primary Health Center in Baubau City, Southeast Sulawesi, Indonesia.

A total of 20 pregnant women with hypertension were recruited using purposive sampling. The inclusion criteria were as follows: pregnant women with systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg, willingness to participate and provide written informed consent, ability to consume the intervention for seven consecutive days, and no antihypertensive medication use at recruitment based on clinical assessment by healthcare providers. The exclusion criteria were a history of chronic kidney disease, cardiovascular disease, severe pregnancy complications requiring immediate referral, known allergy to bay leaves, inability to complete the intervention period, and refusal to continue participation.

The intervention consisted of a decoction prepared from fresh Indonesian bay leaves (*Syzygium polyanthum* (Wight) Walp.). Each preparation used 10–15 fresh leaves (approximately 9 g), boiled in 600 mL of water for 5–10 min after reaching the boiling point until the volume was reduced to approximately 400 mL. The decoction was prepared daily and administered at a dose of 200 mL twice daily in the morning and afternoon for seven consecutive days.

The participants received instructions on decoction preparation and consumption. Adherence was monitored daily by trained midwives and community health volunteers. Participants were advised to maintain their usual dietary intake and physical activity during the intervention period and to avoid other herbal preparations that reduce blood pressure. As all participants were pregnant women with hypertension, clinical monitoring was conducted throughout the intervention period. Blood pressure was assessed on day 1 before the intervention, day 4 during the intervention, and day 7 after the intervention. Participants were monitored for warning signs of worsening hypertensive disorders of pregnancy, including severe headache, visual disturbances, epigastric pain, severe edema, and markedly elevated blood pressure (BP). Participants with these symptoms were immediately referred to a higher-level healthcare facility according to standard maternal care protocols.

Data were collected through structured interviews, observations, and blood pressure measurements using a standardized digital sphygmomanometer. Systolic and diastolic blood pressure were measured before the intervention and after completion of the seven-day intervention.

Univariate analysis was used to describe the participant characteristics. Data normality was assessed using the Shapiro-Wilk test before hypothesis testing. As the data met the normality assumption, the differences in systolic and diastolic blood pressure before and after the intervention were analyzed using paired-sample t-tests. Statistical significance was set at $p < 0.05$, with a 95% confidence level.

This study was approved by the Health Research Ethics Committee of STIKES Kendal (ethical clearance number: 045/EC/KEPK_STIKES_KENDAL/V/2025). All participants provided written informed consent

before enrollment and were informed of their right to withdraw from the study at any time without consequences for their healthcare services.

Result and Discussion

Table 1 presents the demographic and obstetric characteristics of participants. Most participants were aged 20–35 years (90.0%), while 10.0% were older than 35 years. Half of the participants had completed junior high school (50.0%), followed by senior high school and college or university education, each accounting for 20.0%. Most participants were in the third trimester of pregnancy (70.0%), indicating that

the study sample mainly consisted of women who were in late pregnancy.

Table 1. Characteristics of respondents (n = 20)

Characteristics	n	%
Maternal age		
20 to 35 years	18	90
>35 years	2	10
Educational level		
Elementary school	2	10
Junior high school	10	50
Senior high school	4	20
College or university	4	20
Gestational age		
First trimester	2	10
Second trimester	4	20
Third trimester	14	70

Table 2. Blood Pressure Before and After Administration of *Syzygium polyanthum* Decoction Among Pregnant Women with Hypertension

Variables	n	Mean ± SD	Δ Mean ± SD	Min	Max	p-value
Systolic (mmHg)						
Before	20	143.50 ± 2.328	9.55 ± 0.214	140	148	<0.001
After	20	133.95 ± 2.114		130	139	
Diastolic (mmHg)						
Before	20	94.45 ± 1.504	5.85 ± 0.128	92	98	<0.001
After	20	88.60 ± 2.722		82	93	

As shown in Table 2, the mean systolic blood pressure decreased from 143.50 ± 2.33 mmHg before the intervention to 133.95 ± 2.11 mmHg after seven days of *Syzygium polyanthum* decoction administration, with a mean reduction of 9.55 mmHg. The mean diastolic blood pressure decreased from 94.45 ± 1.50 mmHg to 88.60 ± 2.72 mmHg, with a mean reduction of 5.85 mmHg. Paired-sample t-test analysis showed statistically significant differences between pre- and post-intervention measurements for both systolic and diastolic blood pressure ($p < 0.001$). These findings indicate that lower blood pressure values were observed after seven days of *S. polyanthum* decoction administration among the study participants.

This study found that systolic and diastolic blood pressure were lower after seven days of *S. polyanthum* decoction administration in pregnant women with hypertension. The mean reduction was 9.55 mmHg for systolic blood pressure and 5.85 mmHg for diastolic blood pressure (DBP). These findings suggest that *S. polyanthum* decoction may be associated with

short-term improvements in blood pressure values in the study population. However, because this study used a one-group pretest-posttest design without a control group, the findings should be interpreted as preliminary and not used to infer causality.

Hypertensive disorders during pregnancy remain clinically important because they are associated with adverse maternal and perinatal outcomes. During normal pregnancy, physiological adaptations involve increased plasma volume, cardiac output, and uteroplacental blood flow, and reduced systemic vascular resistance. Disruption of these adaptive processes may contribute to gestational hypertension and other hypertensive disorders during pregnancy (Collins et al., 2024). These conditions are associated with preeclampsia, preterm birth, placental abruption, low birth weight, and neonatal morbidity (Tita et al., 2022; Xavier et al., 2023). Therefore, interventions that support blood pressure control during pregnancy require careful scientific evaluation.

The reduction in blood pressure observed in this study may be related to the bioactive

compounds found in *S. polyanthum*. Previous studies have reported that bay leaves contain flavonoids, tannins, saponins, terpenoids, and essential oils with antioxidant and potential antihypertensive properties (Nugroho et al., 2022). Oxidative stress and endothelial dysfunction are important mechanisms underlying hypertensive disorders during pregnancy (Kinshella et al., 2022). Therefore, the antioxidant compounds in *S. polyanthum* may support vascular function and endothelial regulation. Several bioactive constituents of *S. polyanthum* have been reported to support vasodilation and blood pressure regulation by modulating vascular tone and fluid balance (Syaripudin, 2025; Tirtanirmala et al., 2024). These mechanisms may partly explain the lower blood pressure values observed after the intervention, although this study did not directly measure oxidative stress, endothelial function, or vascular biomarker levels.

The use of herbal or food-based preparations during pregnancy requires careful attention to maternal and fetal health. Some herbal products are widely consumed without adequate evaluation of their safety, effectiveness, dosage, or potential interactions with medications. Indonesian bay leaf, *S. polyanthum*, is traditionally used as a culinary spice and medicinal plant. Older dried leaves are commonly used as flavoring in various dishes, whereas young shoots may be consumed as vegetables or salad ingredients in some communities (Julizan et al., 2023). A 28-day subacute toxicity study in rats administered methanol extract of *S. polyanthum* leaves at doses up to 2,000 mg/kg body weight reported no morbidity, mortality, or marked behavioral changes, although histological liver changes were observed in male rats at high doses (Harun et al., 2021). However, findings from animal toxicity studies cannot be directly generalized to pregnant females. However, pregnancy-specific safety data are still required.

The findings of the present study are consistent with those of previous studies reporting the antihypertensive potential of *S. polyanthum*. Fitriani et al. (2024) reported that bay leaf administration was associated with reduced blood pressure in pregnant women, while Muhidin et al. (2024) found that bay leaf decoction therapy was followed by lower blood pressure in adults with hypertension. These findings support the potential role of *S. polyanthum* in blood pressure management as a

complementary food-based approach. Nevertheless, differences in the study population, pregnancy status, intervention dose, preparation method, duration, baseline blood pressure, and study design should be considered when comparing findings across studies.

From the community nutrition and public health perspectives, *S. polyanthum* decoction may be relevant because it uses a locally available food plant that is familiar to Indonesian households. Local food-based approaches may improve the acceptability and feasibility of primary health care and community settings, especially in areas with limited access to structured non-pharmacological hypertension programs. However, such approaches should be viewed as complementary to standard antenatal care. They should not replace clinical monitoring, referral systems, or evidence-based pharmacological treatment when indicated (Escobar et al., 2024).

This study had several limitations. First, the one-group pretest-posttest design did not include a control group; therefore, the observed reductions in blood pressure cannot be attributed solely to the *S. polyanthum* decoction. Second, the sample size was small and selected using purposive sampling, which limited generalizability. Third, potential confounding factors, including dietary intake, sodium consumption, physical activity, stress, sleep patterns, gestational age progression, and other lifestyle factors, were not controlled for. Fourth, this study did not assess biochemical markers, maternal-fetal safety outcomes, or long-term blood pressure changes. Future randomized controlled studies with larger samples, standardized decoction preparation, safety monitoring, and control of relevant confounders are needed to confirm the effectiveness and safety of *S. polyanthum* decoction in pregnant women with hypertension.

Conclusion

This study found that seven days of (*Syzygium polyanthum* (Wight) Walp). administration was followed by lower systolic and diastolic blood pressures in hypertensive pregnant women. These findings suggest that *S. polyanthum* decoction may be a potential complementary local food-based nutritional approach to support blood pressure management in this population. However, the results should be interpreted

cautiously because the study used a one-group pretest-posttest design, included a small sample size, and did not include a comparison group.

Further randomized controlled trials with larger sample sizes, standardized decoction preparation, longer follow-up, comparison groups, and maternal-fetal safety monitoring are needed to confirm the effectiveness and safety of *S. polyanthum* decoction in pregnant women with hypertension.

Acknowledgements

The authors would like to express their sincere gratitude to Baubau Polytechnic for its financial support and to the Sula Health Center for its assistance in conducting this research.

References

- Arikah, T., Rahardjo, T. B. W., & Widodo, S. (2020). Kejadian hipertensi pada ibu hamil. *Jurnal Penelitian dan Pengembangan Kesehatan Masyarakat Indonesia*, 1(2), 115–124. <https://doi.org/10.15294/jppkmi.v1i2.40329>
- Collins, H. E., Alexander, B. T., Care, A. S., Davenport, M. H., Davidge, S. T., Eghbali, M., Giussani, D. A., Hoes, M. F., Julian, C. G., LaVoie, H. A., Olfert, I. M., Ozanne, S. E., Bytautienė Prewit, E., Warrington, J. P., Zhang, L., & Goulopoulou, S. (2024). Guidelines for assessing maternal cardiovascular physiology during pregnancy and postpartum. *American Journal of Physiology-Heart and Circulatory Physiology*, 327(1), H191–H220. <https://doi.org/10.1152/ajpheart.00055.2024>
- Ekawati, F. M., Emilia, O., Brennecke, S., Gunn, J., Licqurish, S., & Lau, P. (2020). Opportunities for improving hypertensive disorders of pregnancy management in primary care settings: A review of international published guidelines in the context of pregnancy care in Indonesia. *Pregnancy Hypertension*, 19, 195–204. <https://doi.org/10.1016/j.preghy.2020.01.012>
- Escobar, M. F., Benitez-Díaz, N., Blanco-Londoño, I., Cerón-Garcés, C., Peña-Zárate, E. E., Guevara-Calderón, L. A., Libreros-Peña, L., & Galindo, J. S. (2024). Synthesis of evidence for managing hypertensive disorders of pregnancy in low- and middle-income countries: A scoping review. *BMC Pregnancy and Childbirth*, 24(1), Article 622. <https://doi.org/10.1186/s12884-024-06796-2>
- Febrianti, A. I. (2022). *Evaluasi rasionalitas penggunaan obat antihipertensi pada pasien preeklampsia berat tahun 2021 di RSUD Syarifah Ambami Rato Ebu Bangkalan* [Skripsi sarjana, Universitas Islam Negeri Maulana Malik Ibrahim Malang]. UIN Maulana Malik Ibrahim Malang Institutional Repository. <http://etheses.uin-malang.ac.id/37772/>
- Fitriani, I., Jayatmi, I., & Hanifa, F. (2024). Efektivitas pemberian rebusan daun salam dan pisang kepok terhadap penurunan tekanan darah pada ibu hamil di TPMB I Kabupaten Garut tahun 2024. *Journal of Innovation Research and Knowledge*, 4(6), 3451–3462. <https://bajangjournal.com/index.php/IIRK/article/view/8857>
- Harun, N. H., Rasdi, N. A., Mohd Salleh, R., Safuan, S., Wan Ahmad, W. A. N., & Mohd Fuad, W. E. (2021). Subacute toxicity evaluation of methanolic extract of *Syzygium polyanthum* in rats. *Tropical Life Sciences Research*, 32(2), 65–81. <https://doi.org/10.21315/tlsr2021.32.2.5>
- Haryanto, F. K., Jesica, I. A., Araf, A. R., Pranasti, E. A., & Rosa, D. (2023). Review jurnal: Pemanfaatan daun salam (*Syzygium polyanthum* (Wight) Walp.) sebagai pengobatan tradisional di Indonesia. *PharmaCine: Journal of Pharmacy, Medical and Health Science*, 4(1), 20–33. <https://doi.org/10.35706/pc.v4i1.8714>
- Jiang, L., Tang, K., Magee, L. A., von Dadelszen, P., Ekeroma, A., Li, X., Zhang, E., & Bhutta, Z. A. (2022). A global view of hypertensive disorders and diabetes mellitus during pregnancy. *Nature Reviews Endocrinology*, 18(12), 760–775. <https://doi.org/10.1038/s41574-022-00734-y>
- Julizan, N., Ishmayana, S., Zainuddin, A., Van Hung, P., & Kurnia, D. (2023). Potential of *Syzygium polyanthum* as a natural food preservative: A review. *Foods*, 12(12), Article 2275. <https://doi.org/10.3390/foods12122275>

- Kinshella, M.-L. W., Omar, S., Scherbinsky, K., Vidler, M., Magee, L. A., von Dadelszen, P., Moore, S. E., Elango, R., & The PRECISE Conceptual Framework Working Group. (2022). Maternal nutritional risk factors for pre-eclampsia incidence: Findings from a narrative scoping review. *Reproductive Health*, 19(1), Article 188. <https://doi.org/10.1186/s12978-022-01485-9>
- Kusuma, L. A., Rahmadhani, S. E., Anam, Z. K., Nadhira, S., Yasa, A., Saensouk, S., & Setyawan, A. D. (2025). Ethnobotanical assessment of edible plant diversity in homegarden of Semarang District, Central Java, Indonesia. *Asian Journal of Ethnobiology*, 8(1), 116–139. <https://doi.org/10.13057/asianjethnobiol/y080110>
- Liu, H.-Y., Jay, M., & Chen, X. (2021). The role of nature-based solutions for improving environmental quality, health, and well-being. *Sustainability*, 13(19), Article 10950. <https://doi.org/10.3390/su131910950>
- Muhidin, A., Susaldi, S., & Lestari, N. E. (2024). Effectiveness of combination therapy of bay leaf decoction and honey on blood pressure in hypertension sufferers. *Journal of Complementary Nursing*, 3(1), 239–245. <https://doi.org/10.53801/jcn.v3i1.130>
- Nugroho, A., Fadlilah, S., Sucipto, A., & Mindarsih, E. (2022). Bay leaves (*Syzygium polyanthum*) and rosella flowers (*Hibiscus sabdariffa*) are effective in reducing blood pressure. *Jurnal Aisyah: Jurnal Ilmu Kesehatan*, 7(2), 395–404. <https://doi.org/10.30604/jika.v7i2.908>
- Perry, A., Stephanou, A., & Rayman, M. P. (2022). Dietary factors that affect the risk of pre-eclampsia. *BMJ Nutrition, Prevention & Health*, 5(1), 118–133. <https://doi.org/10.1136/bmjnp-2021-000399>
- Sabandar, C. W., Jalil, J., Ahmat, N., Aladdin, N.-A., Nik Abdullah Zawawi, N. K., & Sahidin, I. (2022). Anti-inflammatory and antioxidant activity of *Syzygium polyanthum* (Wight) Walp. *Sains Malaysiana*, 51(5), 1475–1485. <https://doi.org/10.17576/jsm-2022-5105-17>
- Susaldi, S., Rahayu, P., & Okstoria, M. R. (2023). Penerapan senam hipertensi dan rebusan air daun salam untuk hipertensi. *Jurnal Pengabdian Masyarakat Saga Komunitas*, 2(2), 182–189. <https://doi.org/10.53801/jpmsk.v2i2.104>
- Syaripudin, A. (2025). The effect of bay leaf (*Syzygium polyanthum*) decoction on lowering blood pressure in hypertensive patients. *Journal of Health and Nutrition Research*, 4(3), 1412–1417. <https://doi.org/10.56303/jhnresearch.v4i3.976>
- Tirtanirmala, P., Mun'im, A., & Firdayani. (2024). Pharmacological and molecular mechanism of *Syzygium polyanthum* leaves as antihypertensive with a network pharmacology approach. *Jurnal Ilmiah Farmasi*, 20(1), 63–79. <https://doi.org/10.20885/jif.vol20.iss1.art5>
- Tita, A. T. N., Szychowski, J. M., Boggess, K., Dugoff, L., Sibai, B., Lawrence, K., Hughes, B. L., Bell, J., Aagaard, K., Edwards, R. K., Gibson, K., Haas, D. M., Plante, L., Metz, T., Casey, B., Esplin, S., Longo, S., Hoffman, M., Saade, G. R., . . . Andrews, W. W. (2022). Treatment for mild chronic hypertension during pregnancy. *The New England Journal of Medicine*, 386(19), 1781–1792. <https://doi.org/10.1056/NEJMoa2201295>
- Veri, N., Lajuna, L., Mutiah, C., Halimatussakdiah, H., & Dewita, D. (2024). Preeklampsia: Patofisiologi, diagnosis, skrining, pencegahan, dan penatalaksanaan. *Femina: Jurnal Ilmiah Kebidanan*, 4(1), 283–296. <https://doi.org/10.30867/femina.v4i1.588>
- Xavier, I. M., Simões, A. C. Z., Oliveira, R. de, Barros, Y. E., Sarmiento, A. C. A., Medeiros, K. S. de, Costa, A. P. F., Korkes, H., & Gonçalves, A. K. (2023). Maternal-fetal outcomes of women with hypertensive disorders of pregnancy. *Revista da Associação Médica Brasileira*, 69(6), Article e20230060. <https://doi.org/10.1590/1806-9282.20230060>
- Yi, L., Min, J. T., Jun, C. L., Long, H. X., Khoo, H. E., Ying, Z. J., & Le, S. J. (2024). Buffalo yogurt fermented with commercial starter and *Lactobacillus plantarum* originating from breast milk lowered blood pressure in pregnant hypertensive rats. *Journal of Dairy Science*, 107(1), 62–73. <https://doi.org/10.3168/jds.2023-23566>