



**ADDITION OF SWEET POTATO LEAF CONSUMPTION TO ANEMIC PREGNANT WOMEN ON INCREASING HEMOGLOBIN LEVELS IN THIRD TRIMESTER PREGNANT WOMEN IN KARAWANG REGENCY**

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**ABSTRACT**

Anemia remains a major public health concern in improving maternal health, particularly among pregnant women and during the postpartum period, due to its serious impact on pregnancy outcomes, childbirth, and breastfeeding. Pregnant women with anemia are at higher risk of delivering infants with iron deficiency anemia, which can impair brain cell development and overall physical growth, potentially resulting in stunting or wasting during childhood. This study aimed to evaluate the effect of sweet potato leaf consumption on increasing hemoglobin (Hb) levels in anemic pregnant women. A quasi-experimental method with a one-group pretest–posttest design was applied. The study involved 30 anemic pregnant women in their third trimester. The intervention consisted of consuming 100 grams of boiled sweet potato leaves daily for 10 consecutive days, including both the vegetables and the boiled water. Hemoglobin levels were measured before the intervention and again on the 11th day. The findings showed that the mean hemoglobin level increased from 9.8 g/dL before treatment to 10.8 g/dL after treatment, with an average increase of 1.11 g/dL. Statistical analysis using a paired t-test produced a p-value of 0.000, which is below the significance level of 0.05. These results indicate that sweet potato leaf consumption significantly improves hemoglobin levels in third-trimester pregnant women with anemia in Karawang Regency.

**Keywords:** *Anemia in pregnant women, Hemoglobin levels, Sweet potato leaves,*

## INTRODUCTION

The proportion of anemia incidence in pregnant women in Indonesia is 48.9%. Meanwhile, the incidence of SEZ in pregnant women shows a figure of 17.3% (Hess et al., 2023). Anemia is a condition in which the number of red blood cells or the capacity of red blood cells to carry oxygen is insufficient to meet physiological needs (Dutta & Dutta, 2025). Pregnant women with anemia are pregnant women with Hb levels <11.0 g/dl who are examined at the time of the first visit. Anemia in pregnant women has several risks that can befall themselves and their babies. Pregnant women with anemia will give birth to babies with iron deficiency anemia which will inhibit the growth of brain cells and other body cells that can manifest in the form of stunting and wasting (Rizki, 2021).

In addition, the impact of anemia on pregnant women is at risk of contributing to mortality and pain in maternity and postpartum mothers as well as inhibiting the breastfeeding process (Susyanti et al., 2020). The results of the literature review show that anemia in pregnancy is a condition of mothers with haemoglobin levels below 11 g/dl in the 1st and 3rd trimesters or haemoglobin levels less than 10.5 g/dl in the 2nd trimester. Anemia in pregnant women has an impact on increasing the number of maternal pain and can even cause death. Iron deficiency anemia is the most common cause in pregnant women can be the main cause of bleeding, long partus, and infections which are the main factors in maternal mortality (Hanriyani & Suazini, 2022).

Anemia can be caused by various things, including iron deficiency, vitamin B12 deficiency, folic acid deficiency, infectious diseases, congenital factors and bleeding. In developing countries, 40% of anemia is caused by iron deficiency (Faysal et al., 2023), which is known as iron nutritional anemia. A diet that is poor in iron nutrients, a high prevalence of worms, and a high prevalence of malaria in endemic areas

are factors that are often associated with high iron deficiency in developing countries (Fuchs et al., 2023).

Especially for pregnant women, the additional need for iron during pregnancy is approximately 1000 mg, which is necessary for fetal growth, placenta and bleeding during childbirth which releases an average of 250 mg of iron. Anemia in pregnant women is at risk of fetal growth inhibition so that the baby is born with low birth weight (BBLR), bleeding during childbirth and can continue after delivery which can cause the death of the mother and her baby (James, 2021)

The content of sweet potato leaves according to (Agbo et al., 2021), has an iron content of 1.01 mg/100 g and a folate content of 80 µg/100 g. The results of (X. Liu et al., 2022) research explained that in 100 grams of sweet potato leaves contain 117 mg of calcium, 1.8 mg of iron, 3.5 mg of carotene, 7.2 mg of vitamin C, 1.6 mg of vitamin E and 0.5 mg of vitamin K, vitamin B, beta-carotene (Elgabry et al., 2023). Other benefits of sweet potato leaves have been proven based on research conducted by (Tedesco et al., 2023) with 5 sweet potato leaves that are boiled, filtered and drunk 1 time a day, for 3 days proven to increase Hemoglobin levels of pregnant women (Uktamova & Khudoyarova, 2024). In some source. It contains a lot of niacin, calcium, iron, lutein, and xanthin. There are also several nutrients contained by sweet potato leaves in high concentrations, including dietary fiber, vitamin A, vitamin C, thiamine, riboflavin, vitamin B6, folate, magnesium, phosphorus, manganese, and potassium (Bai et al., 2023).

Some of the results of previous research related to the use of sweet potato leaves for health have been carried out by many researchers in several countries including: (Luo et al., 2021) in China researched the function of sweet potato leaves as a food ingredient that contains nutrients and has medicinal benefits (H. Sun et al.,

2014) in the article according to the nutritional quality index, sweet potato leaves are a good source of protein, fiber, and minerals, especially K, P, Ca, Mg, Fe, Mn, and Cu. The correlation coefficient between antioxidant activity and total polyphenol content was highest (0.76032,  $p < 0.0001$ ), indicating that polyphenols are important antioxidants in sweet potato leaves. Sweet potato leaves, containing unsur Fe as the most abundant microelement (average content of 8.15 mg/100 g DW), followed by Mn (average content of 4.10 mg/100 g DW), Zn (average content of 2.27 mg/100 g DW).

(Moura et al., 2021) in their research article wrote that antioxidants in sweet potato leaves were found that the use of sweet potato stalks and leaves contained a high carotene of 25.05 mg/100 g FW (fresh vegetables) and the vitamin C content in sweet potato leaves showed levels of 5.96 mg/100 g FW compared to pumpkin and pumpkin and 3.56 mg/100 g FW in Chesnut. According to Ishiguro et al. (2004), the average vitamin C content of sweet potato leaves was 7.2 mg/100 g FW, higher than the value recorded in this study.

Research on the composition of vitamins and minerals contained in 100 grams of sweet potato leaves includes vitamin C 15.20 mg, iron 16.00 mg, Mg 340.00 mg, Ca. 28.44 mg (Antia, B.S, Akpan, EJ, Okon, 2006). A study in Arkansas on the nutritional content and medicinal properties of sweet potato leaves found that sweet potato leaves have a value of 117 mg of calcium, 1.8 mg of iron, 3.5 mg, rich in carotene, so it has a medicinal effect of several diseases and as an antioxidant (Luo et al., 2021).

Sweet potato leaf research on Pregnant women who consumed MMN tablets plus sweet potato leaf extract experienced an average increase in haemoglobin of 0.8 grams, and pregnant

women who consumed Fe tablets experienced an average increase in haemoglobin of 0.4 grams, and there was an effect of consumption of sweet potato leaves with Fe tablets on the increase in the hemoglobin value of pregnant women with a value ( $p = 0.001$ ) ( $p = 0.05$ ) (Tang et al., 2021). Likewise The study of giving purple sweet potato leaf decoction to increase Hb levels in pregnant women in the third trimester showed that there was an effect of giving purple sweet potato leaf decoction with hemoglobin levels in pregnant women in the third trimester with a value of  $p = 0.000$   $\alpha < 0.05$  (Pushpalatha & Gangadharan, 2024).

The results of the mini-research conducted (R. Liu et al., 2021) Types of research *pre-post experiment* with a sample of 4 people who will be studied and assessed hemoglobin levels before and after being given treatment. The results of the study showed that the treatment of giving 100 grams of sweet potato leaf decoction for 10 days could increase haemoglobin levels in each respondent at R1 1.7 gr, R2 2.1, R3 2.2, and R4 2.7 gr%.

Karawang Regency based on 2016 data shows the number of maternity mothers as many as 50,276 people with the number of obstetric complications handled as many as 8,960 people. Meanwhile, data on maternity between January and August 2020 showed that the number of spontaneous mothers gave birth was 23,368 and deliveries with cesarean section were 5,272 people. The number of pregnant women with anemia showed that 23.53% occurred at the Base Health Center. Based on this background, I think the author is interested in researching "Giving Sweet Potato Leaf Consumption in Pregnant Women with Anemia to Increase Haemoglobin Levels in

Pregnant Women in the Third Trimester in Karawang Regency"

**METHOD**

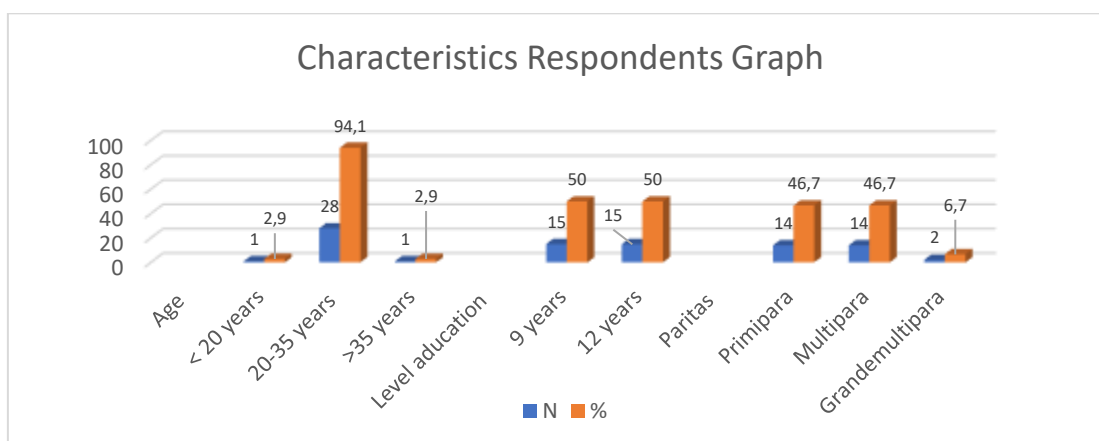
Types of analytical research with *Quasy experimental design one group pretest and postest*. The research sample was 30 subjects of pregnant women. Sampling was determined based on inclusion criteria: pregnant women in the second and third trimester, pregnant women in good health, not undergoing treatment for chronic diseases such as tuberculosis and diabetes mellitus,

asthma and did not experience pregnancy complications. Before treatment, informed consent is carried out (Lungguh Perceka & Rusyani, 2025). The treatment carried out was that pregnant women were given 100 grams of sweet potato leaf vegetables and their soup every day to be consumed every day for 10 days. Furthermore, on the eleventh day, a home visit was carried out to check haemoglobin levels digitally with the same tool as the Fora 6 brand during the initial assessment.

**RESULT**

The following will be presented the results of the research:

**Table 1. Distribution of respondents by characteristics**



Based on table 5.1.1. The distribution of respondents based on characteristics showed that the most age was at the age of 20-35 years at 94%, which means that the dominant respondent was at a healthy reproductive

age. The respondents' education level was at 50% of primary and secondary education. The number of respondent parity was balanced between primipara and multipara and as many as 6.7% had a parity of more than 3.

**Table 2. Frequency Distribution of Hb Levels Before and After Treatment**

Variable	Mean	N	Std. Deviation	Average Hb (gr%) rate increase
Hb before	9,809	30	.1811	1.11
Hb after	10,910	30	.1401	

Based on the results of the research in table 2. The average frequency of Hb levels before treatment

was obtained at 9,809 gr% and after treatment 10,910 gr%. The conclusion is average. The average respondent before

treatment was in moderate anemia and after the end of treatment, the average respondent increased to mild anemia.

**Table 3.** Test of the Effect of Sweet Potato Leaf Consumption on Hb Levels Third Trimester Pregnant Women with Anemia

Variabel	Paired Sample T test							
	Paired Differences							
	Mean	Std. Deviat ion	Std. error	95% Confident interval		t	df	Sig. (2-tailed)
				Lower	Upper			
Hb before and after treatment	-1.1100	.5454	.0996	-1.3137	-9063	-11.147	29	.000

Based on the table. 3 The results of bivariate analysis using the paired T-test test obtained a p value of 0.000. This value is less than  $\alpha=0.05$ , which means that there is an effect of the consumption of sweet potato leaf vegetables on the hemoglobin levels of pregnant women in the third trimester, with anemia in the Karawang Regency area in 2021.

## DISCUSSION

The results of the study on the consumption of sweet potato leaves in pregnant women with anemia on an increase in hemoglobin levels in pregnant women in the third trimester in Karawang Regency showed an average picture of pregnant women experiencing moderate anemia (James, 2021). The treatment of giving sweet potato leaf vegetables increased the average hemoglobin level of the respondents to 10,910 gr%. The results of the bivariate analysis test using a *paired t-test* obtained a p value of 0.000 (R. Sun et al., 2022). This value is less than  $\alpha=0.05$ , which means that there is an effect of the consumption of sweet potato leaf vegetables on the hemoglobin levels of pregnant women in the third trimester, with anemia in the Karawang Regency area in 2021. These results prove that iron in sweet potato leaf vegetables is able to increase

hemoglobin levels in respondents after an intervention in giving sweet potato leaf vegetables for 10 consecutive days.

Anemia in pregnancy is a body condition where the level of hemoglobin (Hb) in the blood is lower than normal (Muxiddinovna & Sobirovna, 2022). In this study, anemia is indicated based on the hemoglobin level of a pregnant woman in her body based on peripheral blood test samples. Hemoglobin is a protein rich in iron. It has the ability to combine with oxygen and with oxygen it forms exihemoglobin in red blood cells (Peace & Banayan, 2021). Hemoglobin is a component of red blood cells that functions to distribute oxygen throughout the body, if Hb is reduced, body tissues lack oxygen. Oxygen is needed by the body to fuel the body's metabolic processes. The function of hemoglobin is the main component of erythrocytes that function to carry oxygen and carbon dioxide. The red color in the blood is caused by the content of hemoglobin, which is a complex protein arrangement consisting of proteins, globulins and one non-protein compound called heme. Heme is composed of a circular compound called porphyrin, the central part of which is occupied by iron metal (Fe). So heme is a porphyrin-iron

compound, while hemoglobin is a complex compound between globin and heme (Agarwal & Rets, 2021).

The results of this study are in line with the results of research that has been conducted by (Pay & Mindarsih, 2023), (Azmi & Puspitasari, 2022). Hb's important role in carrying oxygen to tissues explains the most common clinical symptoms of anemia, which include fatigue, shortness of breath, pulse or palpitations, and paleness of the conjunctiva and palm (Yunadi & Septiyaningsih, 2020).

The increase in hemoglobin levels in this study with an average of 1.11 gr % has been given the consumption of sweet potato leaves, it is possible that the content of sweet potato leaves has an abundant Fe content as an element with an average of 8.15 mg/100 gr, Mn 4.10 gr/100 gr and Zn 2.27/100 gr in dry preparations (Zulfiqar et al., 2021). The results of (Li et al., 2023) show that the results of the literature review were obtained that consuming sweet potatoes and sweet potato leaves is beneficial in increasing hemoglobin in pregnant women because sweet potatoes and sweet potato leaves contain iron which can increase Hemoglobin levels. The analysis of (George et al., 2024) in their research showed that the use of sweet potato stalks and leaves in fresh vegetables is high in carotene and other antioxidants needed by the body. The potential for giving sweet potato leaf infusion can increase the amount. In addition, the results of research by (Atoilah et al., 2015) show that sweet potato leaf infusion can increase platelet levels in dengue fever patients.

It is known that nutritional anemia occurs when the concentration of hematopoietic nutrients involved in the production or maintenance of red blood cells is insufficient to meet those needs. Iron deficiency occurs when iron intake cannot meet iron needs over a period of time, especially during periods of life when iron requirements are very high (for example, during periods of rapid growth and development, such as pregnancy). Vitamin A has been shown to increase Hb

concentrations, hematocrit, and some iron status indices, even when administered without iron supplements. Vitamin A deficiency is thought to cause anemia through a variety of mechanisms, including the role of retinoids in erythropoiesis, which plays an important role for immune function, as well as vitamin A's role as a good *fixer* in iron metabolism. While Vitamin A deficiency anemia is described as hypochromic or microcytic and hypochromic. Folate deficiency can also lead to a decrease in erythrocyte life span. Vitamin B12 deficiency in low-income countries most often results from low-nutrient food intake. Riboflavin given along with iron supplements has been shown to have a greater effect on Hb concentrations than iron supplements alone among children and pregnant women in some studies, though not all.

The assumption of the results of the study on the additional consumption of sweet potato leaf vegetables that has been carried out in pregnant women in the third trimester with anemia is that the consumption of sweet potato leaf vegetables can increase the hemoglobin levels of pregnant women with anemia due to the content of mineral elements found in sweet potato leaves in soupy vegetable dishes containing mineral elements such as Fe, Mn and Zn as well as the vitamin content contained in them and dissolved in boiling sweet potato leaf water helps iron absorption into the body so that if consumed regularly within 10 consecutive days it can increase hemoglobin levels in the blood. So that this vegetable and the method of consumption and processing can be carried out by anyone, especially pregnant women and WUS to prevent and treat anemia.

## CONCLUSION

From the result above show the average hemoglobin level before treatment was 9.8 gr and after treatment was 10.8 gr% and the average increase in hemoglobin levels in pregnant women in the third trimester with anemia in Karawang Regency was 1.11 gr% and consumption of

sweet potato leaf vegetables for 10 days in pregnant women in the third trimester with anemia can increase hemoglobin levels of pregnant women with anemia in the work area of Karawang Regency.

## REKOMENDATION

1. Socializing the benefits of sweet potato leaves to the people of Karawang Regency, especially pregnant women with anemia to increase Hb levels as an effort to prevent pregnancy complications and also to other target groups such as breastfeeding mothers, toddlers, WUS and adolescents related to the many benefits that can be taken from consuming sweet potato leaf vegetables.
2. Making innovations in processed sweet potato leaves so that they are in great demand by the public
3. It is necessary to consider continuing research related to the benefits of sweet potato leaves for the health of mothers and toddlers.

## REFERENCE

- Agarwal, A. M., & Rets, A. (2021). Laboratory approach to investigation of anemia in pregnancy. *International Journal of Laboratory ...* <https://doi.org/10.1111/ijlh.13551>
- Agbo, E. A., Kouassi, K., Gouekou, D. A., Meite, S., & ... (2021). Antioxidant Activities in Sweet Potatoes Leaves Steamed with Spices. *Journal of Food ...* <https://ideas.repec.org/a/ibn/jfrjnl/v9y2021i4p41.html>
- Antia, B.S, Akpan, EJ, Okon, P. A. (2006). Nutritive and Anti-Nutritive Evaluation of Sweet Potatoes (Ipomoea batatas) Leaves. *Pakistas Journal Of Nutrition* 5, 2(Nutrition), 166–168.
- Atoilah, E. M., Perceka, A. L., & Rahayu, R. R. (2015). Hubungan Paparan Media Cetak Dan Elektronik Dengan Tingkat Pengetahuan Pencegahan Demam Berdarah Dengue (DBD) di Wilayah Kerja Puskesmas .... *Jurnal Medika Cendikia*. <https://www.jurnalskhg.ac.id/index.php/medika/article/view/40>
- Azmi, U., & Puspitasari, Y. (2022). Literature review: Risk factors of anemia in pregnancy women. *Journal for Quality in Public Health*. <https://www.jqph.org/index.php/JQH/article/view/428>
- Bai, C., Chen, R., Zhang, Y., Bai, H., Tian, L., Sun, H., & ... (2023). Comparison in structural, physicochemical and functional properties of sweet potato stems and leaves polysaccharide conjugates from different technologies. *International Journal of ...* <https://www.sciencedirect.com/science/article/pii/S0141813023026247>
- Dutta, I., & Dutta, D. K. (2025). Anemia in pregnancy. *Systemic Disorders in Pregnancy*. [https://doi.org/10.1007/978-981-96-4876-4\\_2](https://doi.org/10.1007/978-981-96-4876-4_2)
- Elgabry, R. M., Sedeek, M. S., Meselhy, K. M., & ... (2023). A review on the potential health benefits of sweet potato: insights into its preclinical and clinical studies. ... *Journal of Food ...* <https://doi.org/10.1111/ijfs.16447>
- Faysal, H., Araj, T., & Ahmadzia, H. K. (2023). Recognizing who is at risk for postpartum hemorrhage: targeting anemic women and scoring systems for clinical use. ... *Journal of Obstetrics & gynecology MFM*. <https://www.sciencedirect.com/science/article/pii/S258993332200177X>
- Fuchs, A., Heiselman, C., Fassler, R., & ... (2023). Early Pregnancy Serum Ferritin in the Non-Anemic Patient as a Predictor of Anemia at Delivery. *American Journal of ...* [https://www.ajog.org/article/S0002-9378\(22\)01080-8/abstract](https://www.ajog.org/article/S0002-9378(22)01080-8/abstract)
- George, J., Reddy, G. V. P., Wadl, P. A., Rutter, W., & ... (2024). Sustainable sweetpotato production in the United States: Current status, challenges, and opportunities. *Agronomy ...* <https://doi.org/10.1002/agj2.21539>

- Hanriyani, F., & Suazini, E. R. (2022). Perubahan Fisik, Emosi, Sosial dan Moral pada Remaja Putri. *Jurnal Medika Cendikia*. <https://www.jurnalskhg.ac.id/index.php/medika/article/view/181>
- Hess, S. Y., Owais, A., Jefferds, M. E. D., & ... (2023). Accelerating action to reduce anemia: Review of causes and risk factors and related data needs. *Annals of the New ...*. <https://doi.org/10.1111/nyas.14985>
- James, A. H. (2021). Iron deficiency anemia in pregnancy. *Obstetrics & Gynecology*. [https://journals.lww.com/greenjournal/fulltext/2021/10000/iron\\_deficiency\\_anemia\\_in\\_pregnancy.21.aspx](https://journals.lww.com/greenjournal/fulltext/2021/10000/iron_deficiency_anemia_in_pregnancy.21.aspx)
- Li, G., Gao, X., Wang, Y., He, S., Guo, W., & ... (2023). Effects of superfine grinding sweet potato leaf powders on physicochemical and structure properties of sweet potato starch noodles. *Food Science & ...*. <https://doi.org/10.1002/fsn3.3593>
- Liu, R., Yu, Z. L., Sun, Y. L., & Zhou, S. M. (2021). The enzymatic browning reaction inhibition effect of strong acidic electrolyzed water on different parts of sweet potato slices. *Food Bioscience*. <https://www.sciencedirect.com/science/article/pii/S2212429221003771>
- Liu, X., Wang, Y., Zhu, H., Mei, G., Liao, Y., Rao, S., Li, S., & ... (2022). Natural allelic variation confers high resistance to sweet potato weevils in sweet potato. *Nature Plants*. <https://www.nature.com/articles/s41477-022-01272-1>
- Lungguh Perceka, A., & Rusyani, H. (2025). THE ROLE OF SOCIAL SOLIDARITY IN URBAN SOCIETY: CASE STUDIES IN LOCAL COMMUNITIES. *International Journal of Humanities, Social Sciences and Business (INJOSS)*, 4(2), 51–61.
- Luo, D., Mu, T., & Sun, H. (2021). Profiling of phenolic acids and flavonoids in sweet potato (*Ipomoea batatas* L.) leaves and evaluation of their antioxidant and hypoglycemic activities. *Food Bioscience*. <https://www.sciencedirect.com/science/article/pii/S2212429220311391>
- Moura, I. O., Jr, C. C. S., Lourenço, Y. R. F., & ... (2021). Chemical characterization, antioxidant activity and cytotoxicity of the unconventional food plants: sweet potato (*Ipomoea batatas* (L.) Lam.) leaf, major gomes (*Talinum ... Waste and Biomass ...*. <https://doi.org/10.1007/s12649-020-01186-z>
- Muxiddinovna, I. M., & Sobirovna, A. Z. (2022). Anemia iron deficiency in pregnancy. *Central Asian Journal of ...*. <https://www.cajlpc.casjournal.org/index.php/CAJLPC/article/view/584>
- Pay, F. S., & Mindarsih, T. (2023). ... Pencegahan Anemia Dalam Kehamilan Dengan Pemberian Edukasi Tentang Anemia Dalam Kehamilan Serta Pemberian Telur Dan Kacang Hijau Pada Ibu Hamil .... *Al-Irsyad (JPMA ...*. <https://ejournal.universitalirsyad.ac.id/index.php/jpma/article/view/664>
- Peace, J. M., & Banayan, J. M. (2021). Anemia in pregnancy: pathophysiology, diagnosis, and treatment. *International Anesthesiology Clinics*. [https://journals.lww.com/anesthesiaclinics/fulltext/2021/05930/anemia\\_in\\_pregnancy\\_pathophysiology,\\_diagnosis,.3.aspx](https://journals.lww.com/anesthesiaclinics/fulltext/2021/05930/anemia_in_pregnancy_pathophysiology,_diagnosis,.3.aspx)
- Pushpalatha, R., & Gangadharan, B. (2024). Climate resilience, yield and geographical suitability of sweet potato under the changing climate: A review. *Natural Resources Forum*. <https://doi.org/10.1111/1477-8947.12309>
- Rizki, M. I. (2021). FITOTERAPI PADA KEADAAN ANEMIA. *JCPS (Journal of Current Pharmaceutical Sciences)*. <https://journal.umbjm.ac.id/index.php/jcps/article/view/794>

- Sun, H., Mu, T., Xi, L., Zhang, M., & Chen, J. (2014). Sweet potato (*Ipomoea batatas* L.) leaves as nutritional and functional foods. *Food Chemistry*, 156(2014), 380–389. <https://doi.org/10.1016/j.foodchem.2014.01.079>
- Sun, R., Kan, J., Cai, H., Hong, J., Jin, C., & ... (2022). In vitro and in vivo ameliorative effects of polyphenols from purple potato leaves on renal injury and associated inflammation induced by hyperuricemia. *Journal of Food* .... <https://doi.org/10.1111/jfbc.14049>
- Susyanti, S., Maryana, D., & Suryawantie, T. (2020). Kecenderungan Kejadian Stunting Balita Di Desa Mekarwangi Wilayah Kerja Puskesmas Mekarwangi Kabupaten Garut. *Jurnal Medika Cendikia*. <https://www.jurnalskhg.ac.id/index.php/medika/article/view/125>
- Tang, C. C., Ameen, A., Fang, B. P., Liao, M. H., Chen, J. Y., & ... (2021). Nutritional composition and health benefits of leaf-vegetable sweet potato in South China. *Journal of Food* .... <https://www.sciencedirect.com/science/article/pii/S0889157520314198>
- Tedesco, D., Moreira, B. R. de A., Júnior, M. R. B., & ... (2023). Sustainable management of sweet potatoes: A review on practices, strategies, and opportunities in nutrition-sensitive agriculture, energy security, and quality of life. *Agricultural* .... <https://www.sciencedirect.com/science/article/pii/S0308521X23000987>
- Uktamova, Y. U., & Khudoyarova, D. R. (2024). OPTIMIZATION OF INTRODUCTION OF PREGNANT WOMEN WITH PREECLAMPSIA. *American Journal of Modern* .... <https://worldejurnal.ru/index.php/ajmws/article/view/261>
- Yunadi, F. D., & Septiyaningsih, R. (2020). Pemberdayaan Kader Dalam Upaya Pencegahan Dan Penanggulangan Anemia Ibu Hamil. ... *Al-Irsyad (JPMA)* .... <http://e-jurnal.universitalirsyad.ac.id/index.php/jpma/article/view/144>
- Zulfiqar, H., Shah, I. U., Sheas, M. N., Ahmed, Z., & ... (2021). Dietary association of iron deficiency anemia and related pregnancy outcomes. *Food Science* & .... <https://doi.org/10.1002/fsn3.2373>