INTERNASIONAL CONFERENCE ON
MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE
VOLUME 1 , ISSN 3032-4408 (Online)
*https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs*

# The Role of Red Spinach in Increasing Iron Levels in Adolescent with Anemia: Literature Review

**Annie Cristyana Purba[1]**
[1]*Poltekkes Kemenkes Semarang*
Corresponding author: email : anniepurba123@gmail.com

**Article history**
Posted : 2024-12-12
Reviewed : 2024-10-29
Received : 2023-10-03

**ABSTRACT**

Anemia is a health problem throughout the world, especially in developing countries, where it is estimated that 30% of the world's population suffers from anemia. Anemia occurs frequently in society, especially in adolescent girls, women of childbearing age, pregnant women and children. For overcome the occurrence of anemia can done with method nonpharmacological. Methods non-pharmacological is a safe alternative, namely with consume spinach Red. Red spinach is known as one of the most important sources of iron. Red spinach has various health benefits such as increasing hemoglobin levels or preventing anemia, maintaining blood sugar levels, increasing endurance, and as a source of vegetable protein. Review sourced library from 11 articles research published in 2019-2024 and taken from Google Scholar and taylor & francis. Based on Results 11 articles researched and analyzed journals author, found that there is influence spinach red to teenager daughter with anemia. Evaluation spinach red required for add knowledge in prevent the occurrence of anemia in adolescents daughter. Related factors with evaluation spinach red in prevent the occurrence of anemia, namely: giving knowledge, giving obedient attitude in consuming Fe tablets, consuming food nutritious, behavior life Healthy.

**Keywords:** Red Spinach, Anemia, Adolescent.

**Introduction**

According to WHO, adolescents is individuals aged 10–19 years. Adolescence is the golden age with optimal growth and development. At this time, teenagers own need very physical and psychological important. Besides that , if happen lack nutrition , one of the problem is anemia (Sari et al., 2022). Anemia is a condition Where Hemoglobin (Hb) levels in blood more low from normal levels for group of people based on age and type sex , in adolescent women Normal Hb levels are 12 - 15 gr/dL and in teenagers man of 13 - 17 gr/dL (Aulya et al., 2022).

Anemia is one of the problem health throughout the world, especially in developing countries, where it is estimated that 30% of the world's population suffers from anemia. Anemia is a common problem happens in society especially in teenagers princess, woman age fertile, mother pregnant and children. Anemia in adolescents daughter until moment This Still Enough high, according to WHO, the global prevalence of anemia ranges from 40-88%. The number resident age teenagers (10-19 years ) in Indonesia amount to 26.2% consisting of from 50.9% male and 49.1 % female (Faridi et al., 2022).

Anemia can caused by several factors. There are two factor that is factor direct and indirect factors direct. Factor direct that is like adequacy Increase tablet consumption blood, distance pregnancy, parity, nutritional status as well as disease infection. Causes the main cause of anemia is lack of intake substance iron in food or additional tablets blood (Choirunissa et al., 2022) . Factors that are not direct like menstruation, where Teenager daughter own risk ten times more big For suffer from anemia compared to with teenager son. This is because of teenager daughter experience menstruation every the month and is in its infancy, so need more Lots intake nutrition. Besides that, imbalance in consume substance iron is also causes of anemia in adolescents. Adolescents daughter normal very notice form body , so that many are limiting consumption food , as well as many become the taboo , so that in consumption food No stable , and fulfillment nutrition not enough (Patimah et al., 2022) .

Impact from anemia Alone rated as very serious problem Serious to health society. Problems health related communities with incidence of anemia in adolescents is pale, weak, tired, dizzy, besides That can the decline ability and concentration learning, inhibiting growth physical and developmental intelligence brain, improve risk suffer disease infection Because Power stand body decreased. The impact of anemia on women can lower Power stand body so that easy sick and lose weight productive work, hemoglobin levels with productivity Work show existence positive correlation, thing This means the more low Hb levels, then productivity Work the more decrease (Kumalasari et al., 2019).

Effort prevention of anemia can given with therapy pharmacological and nonpharmacological, Therapy pharmacological is giving useful Fe tablets For increase hemoglobin levels in adolescents, however drug the own effect side like stomach feel No yummy, nausea, constipation, and stool colored black. Therefore That given therapy non-pharmacological like spinach red (Aryunita & Doriani Harahap, 2022) .

Spinach red (Amaranthus tricolor) is plant food colored red that can consumed the leaves as vegetables. Plants This can cultivated in the area climate hot and also cold. Spinach red known as one of the source substance very iron important. Spinach red have various benefit For health like increase hemoglobin levels or prevent anemia, maintain level sugar blood , increase Power stand body, and sources of vegetable protein (Hapsari & Mayra Permata Madani, 2023).

Spinach red own content substance impressive iron, far more tall than spinach common (Spinacia oleracea). In addition content substance iron, spinach red also contains Lots nutrition important others, including vitamin C, folate, and vitamin B12. Vitamin C plays a role role important in increase absorption substance iron, making spinach red as important mineral sources that can absorbed in a way biological. Folate and vitamin B12 are very required For erythropoiesis, the process of production cell blood red. With thus , spinach red appear as source very rich in nutrients potential For overcome various aspect lack substance iron and anemia (Endang Sari, Mekar Zenni Redhia, 2024).

A number of research also shows that consume spinach red influential to improvement Hb levels in adolescents daughter who has anemia. Spinach red also not only made into as vegetables, but made into juice, drinks, cookies. Proven that research conducted by (Fadhli et al., 2024) about spinach red which can be made into pudding influential to hemoglobin levels and can overcoming anemia in adolescents daughter

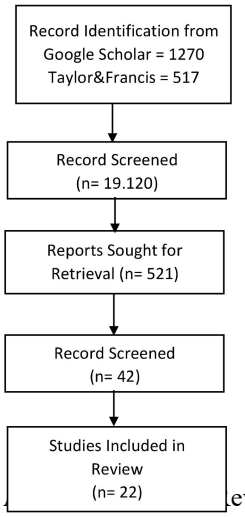
Based on a number of study previous has prove influence spinach red For Overcoming anemia and increasing hemoglobin in adolescents Princess. Needed evaluation from a number of study the use enhance and strengthen information as well as maximize implementation in consume spinach red that can overcome anemia and improve hemoglobin levels in adolescents daughter.

**Research Method**

Design study or methods applied in writing This use literature review method, namely A good literature search from international or abroad and national or domestic. Literature review study is style used For collect related data and sources with A subject or theme certain that is obtained from various type source that is from journal, internet, books and libraries others. In study This is the secondary data used is originate from results researches from researcher previously. Data that has been obtained quick explained in a way easy written digested by the reader later.

Place search article study done with using internet media, namely search done via Google Scholar and taylor & francis. At this stage beginning search article research on Google Scholar and taylor & francis using the keyword Spinach red against anemia, anemia, teenagers princess , spinach red against anemia in adolescents daughter 19,120 articles obtained from 2019 to 2024 , will but the one that comes in in criteria inclusion only 15 articles relevant research , then The critical appraisal process resulted in 11 articles being obtained study.

Data analysis is digging and collecting systematic data For upgrade understanding research that is researched and reviewed as other people's findings. This literature review For analyze it use method literature that is with method sort and classify the data obtained from results obtained in accordance criteria inclusion, and then explained One one by one and give conclusion For every the source related what is written in it. Article study will answer objective research and then entered related theories with



article study as well as assumption from researchers were also included.

Figure 1. PRISMA Flow Diagram

**Results and Discussions**

Based on results search literature with use system searches that are on Google Scholar and Taylor & Francis with using keywords Spinach red against anemia, anemia, teenagers princess , spinach red against anemia in adolescents daughter there is 19,120 articles study then screened based on criteria inclusion that is range time 6 years journal last (2019-2024), type original journal in form fulltext . Journal speak Indonesian and English English, and journals themed spinach red against anemia, adolescent anemia, spinach red against anemia in adolescents Princess. From the results filtering the so article research findings from Google Scholar there are 8 and from taylor & francis There are 3 articles, so the total obtained is through filtering is 11 articles.

| No. | Title | Author | Methods | Results |
|---|---|---|---|---|
| 1. | Analysis of Anemia in Adolescent Girls | (Aulya et al., 2022). | This research is a qualitative research. The samples in this study were 7 adolescent girls. Data collection was carried out using the tri angulation test, processed by the data reduction method and presented in the form of narrative text. | It was found that most informants had heard the term anemia before from various different sources and almost all informants only knew anemia was a condition of blood deficiency without knowing more details about anemia. |
| 2. | Phytochemical Content and Pharmacological Activity of Red Spinach (Amaranthus Tricolor L) | (Rahmawati & Retnaningrum, 2021) | The method of preparing reviews through literature studies on secondary data sources in the form of national and international scientific journals | Red spinach (Amaranthus tricolor L) is a plant that has many benefits. Phytochemical screening showed that alkaloids, saponins, tannins, flavonoids and sterols are the main constituents of red spinach (Amaranthus tricolor L) that have pharmacological activity. |
| 3. | The Effect of Fe Tablet Booklet Media Education on Adolescent Girls as an Effort to Prevent Stunting | (Ulfah & Aulia, 2023) | The research method used with analytic descriptive design with Wilcoxon test. Sampling research using Accidental sampling technique, namely taking respondents who happened to exist and | The results showed that before being given education using booklets about FE tablets, the knowledge of adolescent girls had an average value of 39.37. |

| | | | | |
|---|---|---|---|---|
| | | | meet the inclusion criteria, namely 56 adolescent girls. | |
| 4. | Factors affecting adherence to taking Fe tablets among adolescents | (Hamrani et al., 2020) | This research design uses descriptive analytics with a cross sectional approach. The number of samples was 83 respondents with the sampling technique used was proportional random sampling. | The results in this study found family support to be a factor influencing adherence to taking fe tablets in adolescents. |
| 5. | The Effect of Red Spinach Juice + Fe Tablets on Increased Hemoglobin Levels in Pregnant Women | (Mariati et al., 2023) | This type of research uses quantitative methods with quasi-experimental methods with a two-group approach. The number of samples taken based on the formula was 60 people where the experimental group was 30 people and the control group was 30 people. | The results showed that there was an effect of giving red spinach juice + Fe tablets on increasing hemoglobin levels and there were differences in increasing hemoglobin levels in groups given red spinach juice + Fe tablets and Fe tablets alone. |
| 6. | Consumption of Red Spinach Tea as an Effort to Increase Hb Levels in Trimester 2 Pregnant Women | (Dondi & Putri, 2019) | This type of research is a pseudo-experiment or Quasy Experiment research with a pretest and postest non equivalent control group design t-test. The number of samples was calculated using the Lameshow sample size formula which amounted to 46 pregnant women respondents who were divided into 2 groups, namely the control group and the treatment group. | The results showed that the administration of red spinach extract together with Fe tablets for 10 days regularly had a significant effect on changes in hemoglobin levels which amounted to 11.915 gr/dl. higher than the control group which was 10.715 gr/dl. |
| 7. | Effectiveness of Red Spinach | (Fadhli et al., 2024) | This type of research is a Quasi Experiment with | The results showed that the mean value of hemoglobin |

| | | | | |
|---|---|---|---|---|
| | Pudding on Hemoglobin Levels in Adolescent Girls with Anemia | | a one group pretest posttest research design. The population was all female students with anemia using total sampling technique and a sample size of 37 respondents. | before being given red spinach pudding was 10.4. The average value after giving red spinach pudding became 12.09 with a p value of 0.000 (p <0.05). Giving red spinach pudding is effective for increasing hemoglobin levels in adolescent girls at Al Baaqiyatussa'adiyyah Islamic Boarding School. |
| 8. | Red Spinach Lidi Noodles to Increase Haemoglobin in Adolescent Girls | (Zulmi et al., 2022) | The research method used is quantitative which uses a pre-experimental design on two groups with the pretest-postest control group design technique. The target population is all young women of Akbid La Tansa Mashiro who experience anemia due to iron deficiency as many as 52 people. | The results showed that respondents who consumed red spinach stick noodles experienced an increase in hemoglobin as much as 90.5%. While respondents who were not given treatment or given red spinach stick noodles did not experience an increase in hemoglobin as much as 71.4%. |
| 9. | Beetroot Juice and Red Spinach Juice to Increase Hemoglobin Levels in Anemic Adolescent Girls | (Purba et al., 2021) | This research is a quasi experiment with pretest-posttest design, non-equivalent control group design. The research subjects were twenty people per group of anemic adolescent girls. The number of samples used was 25 people per group of adolescent girls suffering from Fe deficiency anemia (meeting the inclusion and exclusion criteria). | In this study, after 2 weeks of beet juice intervention in anemic adolescent girls, there was an increase in Hb levels from 11.47 g/dl to 12.02 g/dl. The increase in Hb levels was statistically different (Paired t-test) ($p < 0.05$). |
| 10. | Effect of Giving Red Spinach Juice to Hemoglobin in Second Trimester Pregnant Women | (Cahyanto & Farida, 2023) | The research design used was a randomized controlled clinical trial with the division of control and intervention | The results showed that the intervention had a significant impact in increasing hemoglobin levels compared to the control group. The |

| | | | | |
|---|---|---|---|---|
| | | | groups. The population in this study were all pregnant women at PMB Zummatul Atika Surabaya as many as 42 pregnant women. | average increase in hemoglobin levels in the intervention group reached 11.4 g/dL, while the control group only increased by 10.1 g/dL. |
| 11. | Factors associated with the incidence of anemia in pregnant women | (Elisa Safitri & Rahmika, 2022) | The design of this study was an analytical survey with a cross sectional approach, with a population of 30 pregnant women who experienced anemia and all of them were sampled. Data analysis was performed using the chi-square statistical test. | The results showed that knowledge factor with p value = 0.016, attitude with p value = 0.029, parity with p value = 0.000, and compliance in consuming Fe tablets with p value = 0.003. The results in this study show that there is a relationship between knowledge, attitude, parity, and compliance in consuming Fe tablets with the incidence of anemia in pregnant women. |

Anemia is a condition Where Hemoglobin (Hb) levels in blood more low from normal levels for group of people based on age and type sex, in adolescent women Normal Hb levels are 12-15 gr/dl and in teenagers man of 13-17 gr/dL (Aulya et al., 2022). Adolescents daughter is one of vulnerable groups suffering from anemia, because at that time they also experienced menstruation and more they knowledgeable not enough against anemia. At the time teenager daughter experience the first menstruation, requires more Lots substance iron For replace lost blood consequence menstruation the (Rahmawati & Retnaningrum, 2021). Based on results article research collected and analyzed in accordance with criteria inclusion There are 11 articles research taken originate from in and also abroad. All article study discuss Influence spinach red to substance iron in adolescents daughter anemia. There is method For overcome anemia and increase hemoglobin, namely with method giving Fe tablets and giving spinach juice red.

Tablet add blood own composition 60 mg of substance elemental iron (ferrous sulfate, ferrous fumarate preparations) or ferrous gluconate) and 0.4 mg of acid folate. Teenagers daughter recommended drink more tablets blood / Fe only 1 tablet / week and 1 tablet / day during time Menstruation. Giving Fe tablets to teenagers daughter effective in reduce and prevent occurrence of anemia. Knowledge about anemia in adolescents very required as method habituation consume Fe tablets with awareness Alone (Ulfah & Aulia, 2023) . However Still There is teenager the princess who is not obedient drink iron tablets with reason only drunk when menstruation, there is effect side after drink feel nausea , and some have not finished the time , and existence assumption feel No drink because of the taste and smell No nice (Hamrani et al., 2020). One of the source substance iron besides from Fe tablets is Can from source vegetable. This is because of a number of facilitating and inhibiting factors absorption substance iron in body. Administration of tablets of substances iron together with substance nutrition micro other more effective in improve substance status iron compared to only give supplementation substance iron in form dose single. Therefore That For increase absorption substance iron in body need given combination substance nutrition micro vitamin C such as that

derived from from spinach red (Mariati et al., 2023).

Spinach red is one of plant local that has known public as plant multipurpose , compact nutritious and efficacious For formation of hemoglobin (Dondi & Putri, 2019). Red spinach is a plant that has many benefits and nutritious content, red spinach contains vitamin C, folic acid and iron which is good and can prevent anemia in adolescents (Fadhli et al., 2024). There are two types of spinach, namely red spinach and green spinach both contain vitamin C, but green spinach contains more vitamin A and red spinach contains more iron, iron contained in red spinach about 7 mg/100 grams more than other vegetables. Red spinach can be utilized as an alternative ingredient for the prevention of iron deficiency anemia. Something different is needed in processing red spinach so that people, especially teenagers, want to consume red spinach vegetables in a different form (Zulmi et al., 2022).

Substance active contained in spinach red and beetroot which can increasing Hb is Fe. In 100 g of spinach red contains 7.0 mg Fe and 62 mg Vitamin C. The role of Vitamin C is help absorption of non-heme Fe (Purba et al., 2021). In addition That Spinach red own benefit For to launch circulation oxygen in blood. Besides That is, the content of vitamin A and vitamin C in spinach red functioning as antioxidants that protect body and brain from toxins and pollution. Vitamin C also helps the absorption process substance iron and speed up system immune body. Besides That's a combination of vitamin B12 and acid folate in spinach red also plays a role important in formation cell blood red , so that can increase hemoglobin levels in blood (Cahyanto & Farida, 2023) .

According to assumption from researcher Alone that results review articles study the For overcome the occurrence of anemia in adolescents daughter is with therapy pharmacology namely Fe tablets and non - pharmacological therapy that is spinach red. The Fe tablets contain substance iron, will but fe tablets the give effect side that makes teenager so lazy to consume it. Therefore That given spinach red, where spinach red the can made into juice, drinks and pudding prevent the occurrence of anemia in adolescents Princess. Inside spinach red there is also content Vit.c and substances iron that if both of them given together so will facilitating and inhibiting absorption substance iron in body.

Factors that can prevent The occurrence of anemia is : Condition economy family decides amount available food in family so that participate determine nutritional status For family, factors knowledge and factors attitude in which teenager daughter must more diligent For consuming Fe tablets (Elisa Safitri & Rahmika, 2022) . According to assumption from researcher Alone that results review article study This is anemia that occurs in adolescents Anemia in daughters is influenced by the condition economics, knowledge and attitudes in adolescents daughter That Alone.

The types of benefits of red spinach in overcoming anemia used in the 11 research articles that have been reviewed vary, among others: 2 studies explain the definition of anemia that occurs in adolescents derived from research by Aulya et al., 2022 and Rahmawati & Retnaningrum, 2021; 3 research studies that explain the content of blood supplement tablets and the reasons why adolescents do not consume red spinach derived from research by Ulfah & Aulia, 2023, Hamrani et al., 2020 and Mariati et al., 2023; 5 research studies on red spinach and its content derived from the research of Dondi & Putri, 2019, Fadhli et al., 2024, Zulmi et al., 2022, Purba et al., 2021 and Cahyanto & Farida, 2023, and 1 research study on factors that cause anemia derived from the research of Elisa Safitri & Rahmika, 2022.

Of the 11 research articles, there are several instruments that have been used to measure hemoglobin levels which state that the teenager is anemic, namely in the literature that has been reviewed, including Hematology Analyzer and observation sheets. Of the 11

research articles that have been reviewed in the results section, there is an effect of red spinach as many as 11 articles, but there is 1 study that shows that consuming too much red spinach can cause side effects such as allergens (allergies) that can interfere with health.

**Conclusion**

Based on the results of the review of 11 research articles, it can be concluded and the evaluation results are that in addition to giving blood tablets, non-pharmacological therapies such as red spinach can prevent anemia in adolescent girls.

Suggestions for adolescents are the need for continuous education with assistance to adolescents to provide more benefits and rewards to adolescents. Consuming red spinach can increase hemoglobin and can prevent anemia in adolescents.

**Acknowledgement**

Article journal This written by Annie Cristyana Ancient and Polytechnic of Health Ministry of Health Semarang, based on results study Role spinach red in increase level substance iron in adolescents anemia sufferers. Fill in completely become not quite enough answer write.

**Conflic of Interest**

I declare that I No own conflict interest for expressed.

**Reference**

Aryunita, & Doriani Harahap. (2022). The Effect of Red Spinning Bottom on Increasing Hemoglobin Levels of Pregnant Women in Tanggabosi Village. *International Journal of Public Health Excellence (IJPHE)*, 1(2), 162–166. https://doi.org/10.55299/ijphe.v1i2.118

Aulya, Y., Siauta, J. A., & Nizmadilla, Y. (2022). Analisis Anemia Pada Remaja Putri. *Jurnal Penelitian Perawat Profesional*.Http://Jurnal.Globalhealthscienc egroup.Com/Index.Php/JPPP ANALISIS, 4(4), 1377–1386. http://jurnal.globalhealthsciencegroup.com/index.php/JPPP

Cahyanto, H., & Farida, D. (2023). Pengaruh Pemberian Jus Bayam Merah Terhadap Hemoglobin Pada Ibu Hamil Trimester II. *Jurnal Ilmiah Ilmu Dan Teknologi Rekayasa*. Https://Ejournal.Polsub.Ac.Id/Index.Php/Jiitr, 5(1), 21–25. https://doi.org/10.31962/jiitr.v5i1.114

Choirunissa, R., Helen Tupan, J., & Suprihatin. (2022). Pengaruh Konsumsi Bayam Merah dan Fe terhadap Peningkatan Kadar Hemoglobin (Hb) pada Ibu Hamil dengan Anemia di Puskesmas Perawatan Suli Maluku Tengah. *Jurnal Kesehatan Karya Husada*, 10(2), 124–130.

Dondi, S., & Putri, A. R. A. (2019). Konsumsi Teh Bayam Merah Sebagai Upaya Meningkatkan Kadar HB Pada Ibu Hamil Trimester 2. Gema Kesehatan. Http://Jurnalpoltekkesjayapura.Com/Index.Php/Gk, 11(1), 20–29. https://doi.org/10.47539/gk.v11i1.90

Elisa Safitri, M., & Rahmika, P. (2022). Faktor Yang Berhubungan Dengan Kejadian Anemia Ibu Hamil. *Journal Healthy Purpose*. Https://Ejurnal.Bangunharapanbangsa.Com/Index.Php/Jhp Faktor, 1(2), 42–48. https://doi.org/10.56854/jhp.v1i2.127

Endang Sari, Mekar Zenni Redhia, H. Z. S. (2024). The Effect of Red Spinach Juice on Hemoglobin Levels in Pregnant Women : A Randomized Controlled Trial. *Sriwijaya Journal of Obstetrics and Gynecology*, 92–102. https://ojs.stikeskeluargabunda.ac.id/index.php/pharmaconjurnal

From several research articles collected, it can be concluded and evaluated that most of them have shown a significant effect of red spinach in preventing anemia in adolescent girls because after respondents get knowledge, nutritious food, and a healthy lifestyle can prevent anemia.

Fadhli, R., Kasdin, & Yanti, R. (2024). Efektifitas Pemberian Puding Bayam Merah Terhadap Kadar Hemoglobin Pada Remaja Putri Dengan Anemia. *Jurnal Ilmu Keperawatan (Journal of Nursing Sciences*), 13(1), 42–50. https://jurnal.stikes-alinsyirah.ac.id/index.php/keperawatan/

Faridi, A., Amalia, A., Furqan, M., & Maryusman, T. (2022). Pengaruh Mie Bayam Merah Terhadap Peningkatan Kadar HbUntuk Remaja Putri. *Jurnal Pustaka Padi*, 1(2), 27–31.

Hamrani, S. S. T., Permatasari, D., & Murti, S. A. (2020). Faktor yang Mempengaruhi Kepatuhan Minum Tablet Fe Pada Remaja. *Jurnal Penelitian Perawat Profesional*. Http://Jurnal.Globalhealthsciencegroup.Com/Index.Php/JPPPFAKTOR , 2(4), 579–590.

Hapsari, T. Y., & Mayra Permata Madani, et all. (2023). Brownies Bayam Merah (Bromer) Pencegah Anemia. *Jurnal Abdi Psikonomi*, 4(2), 59–63.

Kumalasari, D., Kameliawati, F., Mukhlis, H., & Kristanti, D. A. (2019). Pola Menstruasi dengan Kejadian Anemia Pada Remaja. Wellness and Healthy Magazine. Http://Wellness.Journalpress.Id/Index.Php/Wellness/, 1(2), 187–192.

Mariati, Mizawati, A., & Maigoda, T. C. (2023). The Effect of Red Spinach Juice + Fe Tablets on Increased Hemoglobin Levels in Pregnant Women. *Jurnal Penelitian Pendidikan IPA*, Http://Jppipa.Unram.Ac.Id/Index.Php/Jppipa/Index, 9(12), 11325–11332. https://doi.org/10.29303/jppipa.v9i12.5085

Patimah, S., Rahmandari, F., & Kurnia, H. (2022). PERBANDINGAN PEMBERIAN JUS BAYAM MERAH DAN JUS BAYAM HIJAU TERHADAP KADAR HB PADA REMAJA PUTRI. *Jurnal Bidan Komunitas*, 5(1), 23–31.

Purba, R. B., Paruntu, O. L., Ranti, I. N., Harikedua, V., Langi, G., Sineke, J., Laoh, J. M., Pesak, E., Tomastola, Y., Robert, D., & Salman, S. (2021). Beetroot juice and red spinach juice to increase hemoglobin levels in anemic adolescent girls. Open Access Macedonian *Journal of Medical Sciences*, 9, 857–860. https://doi.org/10.3889/oamjms.2021.6871

Rahmawati, W., & Retnaningrum, D. N. (2021). Kandungan Fitokimia dan Aktivitas Farmakologis Bayam Merah (Amaranthus Tricolor L.). *Conference on Innovation and Application of Science and Technology*, 4(Ciastech), 571–576.

Sari, P., Herawati, D. M. D., Dhamayanti, M., & Hilmanto, D. (2022). Anemia among Adolescent Girls in West Java, Indonesia: Related Factors and Consequences on the Quality of Life. Nutrients, 14(18), 1–13. https://doi.org/10.3390/nu14183777

Ulfah, B., & Aulia, F. (2023). Pengaruh Edukasi Media Booklet Tablet Fe Pada Remaja Putri Sebagai Upaya Mencegah Stunting. *Journal of Innovation Research and Knowledge*, 2(3), 363–370. https://bnr.bg/post/101787017/bsp-za-balgaria-e-pod-nomer-1-v-buletinata-za-vota-gerb-s-nomer-2-pp-db-s-nomer-12

Zulmi, D., Rusli, D. A., Nufus, H., Andini, K. P., Soviah, S., & Yuliani, L. (2022). Mie Lidi Bayam Merah untuk Meningkatkan Haemoglobin pada Remaja Putri. *Jurnal Obstretika Scienta*, 10(2), 132. https://doi.org/10.55171/obs.v10i2.803