

The Effectiveness of Banana Flower in Reducing Emesis Gravidarum in First Trimester of Pregnant Women

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ABSTRACT

Background; *Continuous emesis gravidarum will become hyperemesis gravidarum, which can increase the risk of pregnancy disorders. Pregnant women with hyperemesis gravidarum are at risk of experiencing dehydration, lack of carbohydrate and fat reserves in the body, small tears in the esophagus and stomach's mucous membrane. One of the diets in the case of emesis gravidarum is consuming foods high in carbohydrates. Banana flower is a food high in carbohydrates and vitamins, and antioxidants. Objectives; to determine the effectiveness of Banana flower in reducing emesis gravidarum in first-trimester pregnant women. Methods; quasi-experiment with pretest and post-test control group approaches. The sampling technique was simple random sampling. Banana flower with 200 g / day dose is given for seven days to pregnant women who experience emesis in the first trimester. The research group was divided into two: the banana flower treatment group and the control group, with 32 samples. Data analysis using the Shapiro-Wilk test and Wilcoxon test. Result; There was a significant difference in the intensity of emesis gravidarum between the group given banana flower and the control group with a p-value of 0.014. The banana flower can reduce the intensity of emesis gravidarum.*

INTRODUCTION

The conception process in women will result in physical changes and psychological changes due to the hormonal system during

pregnancy. One of the physical changes in the digestive system's change due to the production of Human Chorionic Gonadotropin (HCG), estrogen, and progesterone, which

increases during pregnancy (Speroff and Fritz, 2011). Changes in the digestive system result in discomfort in pregnant women, such as emesis, frequent bloating, constipation, and bleeding of gums (Tyastuti and Wahyuningsih, 2016).

Emesis gravidarum is nausea and vomiting that occurs in pregnancy with an incidence of more than 80%. Emesis that is not treated correctly will develop into hyperemesis, affecting both the mother and the fetus (Wylde, Nwose and Bwititi, 2016). Complications due to hyperemesis are ketonuria, dehydration, hypokalemia, and weight loss of more than 3 kg or 5% body weight (Gunawan, Manengkei and Dwiana Ocviyanti, 2011). Several studies suggest that emesis is caused by infection with *Helicobacter pylori* bacteria (Li *et al.*, 2015), hormonal factors, vitamins D3, B6, and selenium (Jomah, Kredy and Assady, 2020).

Management for emesis gravidarum is adequate rest, avoiding foods that stimulate emesis, such as spicy foods, fatty foods, and iron tablets, changing dietary patterns by consuming small but frequent portions of food and drinks (Gunawan, Manengkei and Dwiana Ocviyanti, 2011). Non-pharmacological therapy to reduce the intensity of emesis are acupressure therapy (Widyastuti, Rumiayati and Widyastutik, 2019), hypnotherapy (Burmanajaya and

Agustina, 2020), lime aromatherapy (Rofi'ah, Widatiningsih and Sukini, 2019), ginger drink (Indrayani, Burhan and Widiyanti, 2018), Kepok Banana (Ratih and Qomariah, 2018), mint and Pomelo (Veri, Ramadhani and Alchalidi, 2020). Another diet to reducing emesis gravidarum is consuming foods that are high in protein and carbohydrates.

One source of carbohydrates is the banana flower. Several studies have stated that Batu Banana flower is beneficial in increasing the production of Mother's Milk (Harismayanti, Febriyona and Tuna, 2019), reducing cholesterol levels (Deviana *et al.*, 2018). The consumption of the Banana flower 200 g/day for three days in postpartum phase can increase an average of 12 ml of breast milk (Noviawanti, Fitri and Silalahi, 2019). Besides that, the banana flower also has antioxidant, anti-inflammatory, antibacterial, and antimicrobial activity (Ferdinan, A., & Prasetya, 2018). The nutritional content per 100 grams of fresh kapok banana flower according to the Directorate of Nutrition of the Indonesian Ministry of Health is 31 kcal of energy, 1.2 grams of protein, 0.3 grams of fat, 7.1 grams of carbohydrates, 3.1 grams of calcium, 50 mg of phosphorus, iron 0.1 mg, 170 mg vitamin A, 0.05 mg vitamin B1, 10 mg vitamin C, and 90.2 grams of water (Kemenkes, 2018). There are no specific studies on the role of banana blossoms

in reducing emesis intensity in pregnant women. Based on the above background, the authors are interested in researching banana flower effectiveness in overcoming emesis gravidarum.

METHODS AND MATERIALS

The research design used was a quasi-experiment with the pre-test post-test control group design approach. The sample in this study was following the inclusion criteria, primigravida, not consume antiemetic drugs. Respondents were grouped into the control

group and the intervention group, with a total of 30 respondents. Before and after being given banana flower 200 grams/day for seven days, emesis frequency was measured twice.

RESULTS AND DISCUSSION

Emesis gravidarum intensity data of the two groups at two measurements are presented in the following table:

Data Univariat

The univariate data analyzed included age, parity, and occupation.

Table 1. Respondent Characteristics Data

Variable	Frequencies	Percentage (%)
Usia Respondent Age		
< 20 ys	3	9.36%
20-35 ys	21	65.64%
> 35 ys	8	25%
Paritas		
Primigravida	24	75%
Multigravida	8	25%
Grande multigravida	0	0%
Total	32	100

Table 2. Effectiveness of Banana Flower on Emesis Gravidarum

No	Kelompok	Data	Mean	Rank	Mean Rank	N	P-value
1	Control	Pretest	3,27	Negative rank	4,00	6 ^a	0,071
		Posttest	4,00	Positive rank	10,13	8 ^b	
				Ties		1 ^c	
2	Treatment	Pretest	4,00	Negative rank	7,88	13 ^a	0,014
		Posttest	3,00	Positive rank	8,75	2 ^b	
				Ties		0 ^c	
Total						30	

Information :

- a. Frequencies emesis posttest < pretest
- b. Frequencies emesis posttest > pretest
- c. Frequencies emesis posttest = pretest

Based on first table, it can be seen that the majority of respondents' characteristics of pregnant women aged 20-35 years are 21 people (65.64%), Primigravida parity is 24 people (75%). Table 2 shows the difference in the mean intensity of emesis gravidarum in the two groups. In the control group, the average pre-test emesis frequency was 3.27 and increased at posttest to 4.00. In the experimental group, the pre-test average frequency was 4.00 and decreased to 3.00 at posttest. In the table above, we can see the Wilcoxon test results in the control group, for the Negative Ranks where the emesis frequency dropped between posttest (final examination) compared to pre-test (initial examination), was as many as six people. The number of respondents who had a higher emesis gravidarum frequency than after and before consumption of banana flower was eight people. This means that in the control group, most respondents experienced an increase in the frequency of emesis gravidarum at posttest.

The table above also shows no significant difference between the frequency of emesis gravidarum at pre-test and protest in the control group, which is shown with a p-value = 0.071. P-value is greater than $\alpha = 0.05$. It

can be concluded that there is no significant or significant decrease in the frequency of emesis gravidarum.

The Wilcoxon test results in the experimental group were obtained for the Negative Ranks; the emesis frequency decreased after consuming banana flower compared to before, namely as many as 13 respondents. The number of respondents who experienced an increase in emesis frequency after consuming banana flower (positive ranks) was two people. In the table above, it is also shown that there is a significant difference in the frequency of emesis gravidarum after the consume the banana flower. They obtained with p-value = 0.014 ($p < 0.05$), which means that consumption of banana flower can reduce the frequency of emesis gravidarum in pregnant women.

Research on the effectiveness of banana blossoms in reducing emesis intensity has never been published. However, this effect is thought to be related to the composition of the banana flower's active compounds. Several studies have shown that the stone banana flower contains flavonoids, serotonin, protein, fat, carbohydrates, calcium, phosphorus, Vitamins A, B, and Vitamin C (Walida, Rismawati and Dasuki, 2013). The flower of bananas also contains anthocyanins and anthocyanidins (Lestario, Lukito and Timotius, 2009).

The banana flower also has antioxidant activity. The banana flower's phenolic compounds are antioxidants that act as free radical scavengers, and their bioactivity can inhibit lipoxygenase and bind free radical-causing metals (Rollando, 2018).

Several theories about the causes of emesis gravidarum are triggered by hormonal changes that cause disturbances in pregnant women's digestive systems. Bacterial infections in the digestive tract are also thought to play a role as triggers for excessive emesis gravidarum (Pratiwi, 2018). The effectiveness of banana blossoms in reducing emesis gravidarum is also thought to be through its role as an antibacterial. This antibacterial activity is through chemical compounds contained therein, such as flavonoids, tannins, saponins (Susanti and Hidayat, 2018).

Flavonoids also act as an anti-inflammatory by reducing neutrophil cells and suppressing cyclooxygenase-2 (COX-2), an enzyme that produces pro-inflammatory cytokines that cause inflammation (Ratnadi, 2020). Other studies suggest that Banana flower also contain citric acid, taurine, pantothenic acid, and nicotinic acid. Citric acid has anti-inflammatory, neuroprotective, and hepatoprotective effects. Besides, the anti-inflammatory effect of banana flowers is also chained by pantothenic acid by increasing the amount of CoA and the synthesis of

glutathione (an antioxidant enzyme) and reducing oxidative stress (Liu *et al.*, 2018).

CONCLUSIONS AND SUGGESTIONS

Banana flower can reduce the intensity of emesis gravidarum in pregnant women in the first trimester. Further research is needed to determine the mechanism of the role of antioxidants, anti-inflammatory, and antibacterial properties of Banana flower.

REFERENCES

- Burmanajaya, B. and Agustina, A. (2020) 'Hipnoterapi dapat Mengurangi Derajat Emesis pada Ibu Hamil Trimester Pertama', *Jurnal Ilmu Keperawatan Jiwa*, 3(1), p. 33. doi: 10.32584/jikj.v3i1.477.
- Deviana, D. *et al.* (2018) 'Rekayasa Konsentrat Bekatul dengan Tepung Jantung Pisang Dapat Meningkatkan Berat Badan dan Menurunkan Kadar Kolesterol Kambing', *Jurnal Sain Veteriner*, p. 74. doi: 10.22146/jsv.26492.
- Ferdinan, A., & Prasetya, A. B. (2018) 'Uji Aktivitas Antioksidan dari Ekstrak Jantung Pisang Kepok (*Musa paradisiaca* L.) Pontianak', *Jurnal Ilmiah Ibnu Sina*, 3(1), pp. 88–96.

- Fritz MA, S. L. (2011) *Fritz MA, Speroff L. Clinical Gyenecologic Endokrinology and Infertility, Clinical Gynecologic Endocrinology and Infertility (Eight Edition).*;2011.
- Gunawan, K., Manengkei, P. S. K. and Dwiana Ocviyanti (2011) ‘Diagnosis dan Tata Laksana Hiperemesis Gravidarum’, *Journal Indonesian Medical Association*.
- Harismayanti, Febriyona, R. and Tuna, M. (2019) ‘Pengaruh Konsumsi Jantung Pisang Terhadap Peningkatan Produksi Asi Pada Ibu Masa Nifas’, (2015), pp. 225–234. doi: 10.32528/psn.v0i0.1750.
- Indrayani, I. M., Burhan, R. and Widiyanti, D. (2018) ‘Efektifitas Pemberian Wedang Jahe Terhadap Frekuensi Mual Dan Muntah Pada Ibu Hamil Trimester I Di Kabupaten Bengkulu Utara Tahun 2017’, *Jurnal Ilmu dan Teknologi Kesehatan*, 5(2), pp. 201–211. doi: 10.32668/jitek.v5i2.29.
- Jomah, N. A., Kredy, H. M. and Assady, N. S. Al (2020) ‘The Effect of Vitamin D3, Vitamin B6, Selenium and Some Electrolytes on the Women with Nausea and Vomiting of Pregnancy in Thi-Qar Government -Iraq’, *Medico-Legal Update*, 20(4), pp. 650–654. doi: 10.37506/mlu.v20i4.1893.
- Kemenkes, R. (2018) *Tabel komposisi*.
- Lestario, L. N., Lukito, D. and Timotius, K. H. (2009) ‘Kandungan Antosianin Dan Antosianidin Dari Jantung Pisang Klutuk (Musa Brachycarpa Back) Dan Pisang Ambon (Musa acuminata Colla) [Anthocyanin Content and Identification of Anthocyanidin of Banana Bract Klutuk variety (Musa brachycarpa Back) and Ambon var’, *Jurnal Teknologi dan Industri Pangan*, 20(2), pp. 143–148.
- Li, Lin *et al.* (2015) ‘Helicobacter pylori infection is associated with an increased risk of hyperemesis gravidarum: A meta-analysis’, *Gastroenterology Research and Practice*, 2015. doi: 10.1155/2015/278905.
- Liu, L. C. *et al.* (2018) ‘Banana flower extract suppresses benign prostatic hyperplasia by regulating the inflammatory response and inducing G1 cell-cycle arrest’, *In Vivo*, 32(6), pp. 1373–1379. doi: 10.21873/invivo.11389.
- Noviawanti, R., Fitri, L. and Silalahi, I. I. (2019) ‘Jantung Pisang Terhadap Peningkatan Produksi Asi Di Desa Sungai Putih Tahun 2018’, *Al-Insyirah Midwifery: Jurnal Ilmu Kebidanan (Journal of Midwifery Sciences)*, 8(2), pp. 83–88. doi: 10.35328/kebidanan.v8i2.151.

- Pratiwi, I. G. (2018) 'Pajanan Infeksi Helicobacter Pylori Dengan Hiperemesis Gravidarum', *Maternal and Neonatal Health Journal*, 2(1), pp. 1–4.
- Ratih, R. H. and Qomariah, S. (2018) 'Kandungan Vitamin B6 Pada Pisang Kepok : Alternatif Mengatasi Mual Muntah Pada Ibu Hamil', *Jurnal Kesehatan Komunitas*, 3(73), pp. 193–195.
- Ratnadi, N. P. I. (2020) 'Efek Antiinflamasi Topikal Ekstrak Etanol Jantung Pisang kepok (Musa paradisiaca Linn.) Terhadap Jumlah Sel Neutrofil dan Ekspresi COX-2 Pada Kulit Mencit Terinduksi Karagenin' (thesis), *Repository Universitas Sanata Dharma*.
- Rofi'ah, S., Widatiningsih, S. and Sukini, T. (2019) 'Efektivitas Aromaterapi Lemon untuk Mengatasi Emesis Gravidarum', *Jurnal Kebidanan*, 9(1), pp. 9–16. doi: 10.31983/jkb.v9i1.3814.
- Rollando, R. (2018) 'Penelusuran Potensi Aktifitas Antioksidan Jantung Pisang Kepok (Musa paradisiaca L.)', *JIFFK : Jurnal Ilmu Farmasi dan Farmasi Klinik*, 15(01), p. 37. doi: 10.31942/jiffk.v15i01.2171.
- Susanti, S. F. and Hidayat, A. R. (2018) 'Uji Daya Hambat Rebusan Jantung Pisang Klutuk Terhadap Pertumbuhan Bakteri Escherichia coli', *Jurnal Akademi Analis Kesehatan*, 8(15), pp. 23–29.
- Tyastuti, S. and Wahyuningsih, H. P. (2016) *Asuhan Kebidanan kehamilan*.
- Veri, N., Ramadhani, N. S. and Alchalidi (2020) 'Efektivitas Peppermint Dan Pomelo Dalam Menurunkan', *Jurnal Kebidanan*, 6(4), pp. 435–441.
- Walida, S. M., Rismawati, E. and Dasuki, U. A. (2013) 'Isolasi kandungan flavonoid dari ekstrak jantung pisang Batu (Musa balbisiana Colla)', *Prosiding Farmasi*, pp. 151–160.
- Widyastuti, D. E., Rumiya, E. and Widyastutik, D. (2019) 'Terapi Komplementer Akupresur Untuk Mengatasi Emesis Gravidarum Pada Ibu Hamil Trimester I Tahun 2018', *Jurnal Kebidanan Indonesia*, 10(1), p. 96. doi: 10.36419/jkebin.v10i1.248.
- Wylde, S., Nwose, E. and Bwititi, P. (2016) 'Morning sickness in pregnancy: mini review of possible causes with proposal for monitoring by diagnostic methods', *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 5(2), pp. 261–267. doi: 10.18203/2320-1770.ijrcog20160356.