

**PROCEEDING**

**INTERNATIONAL  
SEMINAR**

**"A NEW APPROACH IN MIDWIFERY EDUCATION"  
LEARNING IN HIGHER EDUCATION**

Jakarta,  
August 27<sup>th</sup> - 29<sup>th</sup>  
2018



**Midwifery Education  
Associaton of Indonesia**

---

# The Effect Of Green Betel Leaf Decoction (*Betle Piper L*) On Vaginal pH Levels

Tessa Siswina<sup>1\*</sup>, Henny Fitriani<sup>2</sup>, Santi Rahmawati<sup>3</sup>

<sup>1</sup> Poltekkes Kemenkes Pontianak, Jl. Dr Soedarso, Pontianak, 78124, Indonesia

<sup>2</sup> Poltekkes Kemenkes Pontianak, Jl. Dr Soedarso, Pontianak, 78124, Indonesia

<sup>3</sup> Poltekkes Kemenkes Pontianak, Jl. Dr Soedarso, Pontianak, 78124, Indonesia

---

## INFORMATION ARTICLES :

### History Pages :

Received Date Apr, 22, 2018

Revised Date Apr, 24, 2018

Published Date

### Keywords

Keyword 1 Green Betel Leaf Decoction

Keyword 2 Betle Piper L

Keyword 3 Vaginal Ph Levels

## ABSTRACT

According to WHO, almost all women and teenagers have experienced *Fluor Albus* 60% in adolescents (15-22 years) and 40% in women (23-45 years). *Fluorine Albus* occurs because the vaginal pH level is disturbed. *PH balance is needed* in the range of 3.8-4.2. Unwise vaginal cleaning such as the use of water and soap, betel juice and other commercial products can worsen the vaginal condition. Treatment with herbs is again favored in this era of *back to nature*. Green betel leaf (*Piper betle L.*) is one of the plants that grows in Indonesia. The content of phenol (karvacrol) and phenylpropane (eugenol and kavikol) in essential oils of green betel leaf serves as *an antiseptic (bactericidal and fungicidal)* which is very strong. Green betel leaf decoction water is used to cleanse the female genitals and avoid vaginal discharge.

This research aim to find out whether there is an effect of water decoction of green betel leaf (*piper betle L*) on vaginal pH levels.

The method using *One group pretest-posttest design without control group*. The population was all students of D III Midwifery level I of Pontianak Health Ministry Polytechnic at 44 people, and sampling technique with total population. Hypothesis testing using *Wilcoxon test*.

There was a difference in vaginal pH levels before and after giving betel leaf water decoction to the D III Midwifery Level I student of the Ministry of Health Poltekkes Pontianak with a midpoint of vaginal pH level before being given a decoction of green betel leaf at 4.00 and after being given green betel leaf decoction the average value is 3.00, has a difference in vaginal pH level 1.

Conclusion is there is an effect of giving water decoction of green betel leaf (*piper betle L*) on vaginal pH levels in the D III Midwifery Level I Student of the Ministry of Health Poltekkes Pontianak.

---

## INTRODUCTION

In Indonesia, almost all women and adolescents have experienced *Fluor Albus* 60% in adolescents (15-22 years) and 40% in women (23-45 years) according to WHO (*World Health Organization*) in Suryandari (2013). *Fluor Albus* or often known as vaginal discharge is excessive fluid that comes out of the vagina. Normal vaginal discharge is clear white, when attached to underwear will be bright yellow consistency like mucus, dilute or thick (Indah, 2011). *Fluor Albus*, which is experienced by women of childbearing age, *Fluor Albus* is all the liquid expenditure of genitalia devices that are not blood. *Fluor Albus* is not a separate disease, but is a symptom manifestation of almost all uterine diseases (Manuaba, 2009). *Fluor Albus* is a symptom of a disease that is characterized by discharge from the reproductive organs and not blood and is normal.

Usually arises during menstruation or after menstruation, according to the high and low estrogen hormone in the blood (Boyke, 2004).

The occurrence of *Fluor Albus* is caused because the vaginal PH level is disturbed. Vaginal pH levels are important for health screening, and this acidic vaginal pH balance created by bacteria occurs normally. A healthy vagina produces fluid to cleanse and regulate itself (Nurwijaya, 2009). *PH balance is needed* in the range of 3.8-4.2. In the vagina besides the normal flora there are also pathogenic bacteria, lactobacillus will be fertile and pathogenic bacteria will die (Suryandari, 2013). According to Donatila (2011) *External vaginal douching* is an activity of washing or cleaning the outer vagina with certain ingredients. Unwise vaginal cleaning such as the use of water and soap, betel juice and other commercial products can worsen the vaginal condition.

---

\*Author Correspondence

Email Address : virshaia@yahoo.com

Adolescence is also called *adolescence* (growing into adulthood). Adolescence is characterized by puberty which is the time a woman is able to experience conception, namely menstruation / first menstruation. During this time adolescents experience sexual development including, the maturity of the sexual organs begins to function, both for reproduction (producing offspring) and recreation (having fun) (Moersintowati, 2002). Indonesian women who have experienced this disease are very large, 75% of Indonesian women must experience vaginal discharge at least 1 time in their lives. More than 70% of Indonesian women experience vaginal discharge caused by fungi and parasites or protozoa (*trichomonas vaginalis*). This figure differs sharply with Europe, which is only 25%. Many Indonesian women experience vaginal discharge because the soil is moist, so it is easily infected with *Candida albicans*, the cause of vaginal discharge, while in Europe it is dry (Elistyawati, 2006).

Medicines from natural ingredients have been used by Indonesians for centuries in the context of hereditary experiences (Suharmiati and Handayani, 2006). Treatment with herbs again favored *diera back to nature*. The implementation of this herbal medicine has a legal basis, namely the Minister of Health Regulation No.1109 / Menkes / PER / IX / 2007. In accordance with the health minister's regulation, the use of traditional medicines is as a effort *promotive, preventive, curative* and *rehabilitative* in order to improve the health status of the community (Maytasari, 2010).

Green betel leaf (*Piper betle* L.) is one of the plants that grows in Indonesia. Indonesian people themselves have used green betel leaves in traditional medicine to strengthen teeth, heal small wounds in the mouth, eliminate body odor, stop bleeding gums and as a mouthwash (Moeljanto and Mulyono, 2003). In addition, green betel leaf decoction water is used to cleanse the female genitals. This method is proven to treat the vagina and avoid vaginal discharge. The content of phenol (carvacrol) and phenylpropane (eugenol and kavikol) in essential oils of green betel leaf serves as an *antiseptic (bactericide and fungicide)* which is very strong (Maytasari, 2010).

Based on the midwife's competency standard (2011) the 6th midwife's competency area on health promotion and counseling is helping women recognize and maintain their reproductive health conditions. The role of a

midwife to prevent the occurrence of *Fluor Albus* can be done by providing counseling that is maintaining the cleanliness of the area *genitalia* into, cleaning the area *genitalia* from the front back, do not use jeans that are very tight so that disrupts vaginal moisture can affect changes in vaginal moisture and trigger vaginal discharge (Suryandari, 2013) The job of a midwife if she meets *fluorine Albus pathologist* consult a health center, expert doctor and hospital (Manuaba, 1998). Based on the background above the author is very interested in conducting research with the title "The Effect of Giving Green Betel Leaf (Water Decoction *Piper Betle* L) on Vaginal PH Levels".

## RESEARCH METHODS

This study used a research design *quasy-experimental* with approach *one group pre-test and post-test*. Treatment was carried out in the treatment group for 3 days.

Eksperiment	0 <sub>1</sub>	X	0 <sub>2</sub>
-------------	----------------	---	----------------

**Figure 4.1 Research design of one group test and post test design.**

### Remarks:

- 0<sub>1</sub>: Observation of vaginal pH levels before treatment
- X: Intervention (giving green betel leaf water decoction)
- 0<sub>2</sub>: Observing vaginal pH levels after treatment

Population is the overall source of data needed in a study. Determination of data sources in a study is very important and determines the accuracy of research results. Data sources or research subjects have certain characteristics, varying according to research objectives (Saryono, 2010). In this study, the population was students of the Pontianak Ministry of Health Polytechnic, Midwifery Department, Midwifery DIII Study Program, 44 people. The sampling technique in this study uses the total population, so the entire population is used as a respondent of 44 people.

Data collection method is a way for researchers to collect data to be carried out in research (Hidayat, 2007). The data used in this study is primary data, namely data collected directly by researchers from the object under study (Sunyanto, 2012). Data collection techniques in

this study are experimental observations. In the treatment group, daily water was given 500 ml of betel leaf decoction every day, which was used during the afternoon. Before being given the treatment of giving water decoction of betel leaf is examined the vaginal pH level. After treatment, a re-examination of the vaginal pH level was conducted to determine the difference in vaginal pH levels before and after being given a decoction of green betel leaf which had been given for 3 days, without using other cleansers.

The instrument used in this study is a measuring instrument for vaginal pH (pH Indicator) strips, SOP for green betel leaf water decoction, master table, and check-list sheet, based on variables that will be known difference in vaginal pH levels before and after being given water stew green betel leaf. The observation format is done by every 1strip pH Indicator placed on the vaginal secretions and leave it for 120 seconds, then see the color changes on the strip pH Indicator, and compare the colors obtained with the pH level in the pH indicator tube.

Data analysis techniques are divided into two types, namely, univariate analysis techniques and bivariate analysis. Univariate analysis carried out on each variable from the results of the study. This analysis produces the frequency distribution and percentage of each variable. Univariate analysis in this study was used to see the distribution and presentation of the dependent variable namely the level of vaginal pH before and after being given a decoction of green betel leaf. This research analysis is based on the characteristics of respondents who have a regular diet, which is 3 times a day with the same food menu, water used for daily activities (bathing, cebok, etc.) has the same water source, has an education level the same, and during cebok using water boiled water or green betel for 3 days in a row, the respondent did not use ingredients or products to clean the vagina of other brands. This method of using a boiled water of green betel leaf is used once a day at night before going to sleep, and is repeated for 3 days.

Bivariate analysis techniques are used to compare and distinguish two variables. This study was conducted to compare vaginal pH levels before and after the administration of green betel leaf decoction water to young women. The statistical test used is a *paired t-test* with computerized assistance. This test is used to test the difference *median* of 2 measurement results in

the same group and in the ratio scale (Dharma, 2015). Statistical test results are used to determine whether the hypothesis testing decision is accepted. With the provision  $H_a$  is accepted if the value of  $p < 0.005$  and  $H_o$  is rejected if the  $p$  value  $> 0.005$ . If  $H_a$  is accepted, there is an effect of green betel leaf decoction on vaginal pH.

## RESULT AND DISCUSSION

### Result

Characteristics of respondents based on respondent's age and underwear change frequency from table 3.1 are as follows:

**Table 3.1**  
**Distribution of Respondents Based on Age of Respondents and Underwear Change Frequency**

Respondent Characteristics	N	Median	SD	Min	Max
Age	44	19,00	1,002	17	21
Underwear Change Freq	44	3,00	0,788	2	5

Based on table 3.1, it can be seen that the midpoint of the characteristics of respondents based on age 19.00 with, with a minimum value of 17 and maximum 21 and a standard deviation of 1.002, while the frequency of changing underwear with a middle value of 3 00 with a minimum of 2 and maximum 5 and a standard deviation of 0.788.

This univariate analysis technique is to see how each variable is illustrated in the study, while in this study is the vaginal pH level before and after being given green betel leaf decoction (*Piper betle* L) on the Level 1 Midwifery D-III student of the Ministry of Health Poltekkes Pontianak in 2018. analysis to determine the differences in vaginal pH levels before and after being given decoction of water or green betel can be seen in table 3.2 are as follows:

**Table 3.2**  
**Distribution of Respondents Based on Vaginal Ph Levels Before and After Giving Green Betel Leaf Decoction**

Vaginal pH	N	Median	SD	Min	Max
Before	44	4,00	0,438	4	5
After	44	3,00	0,438	3	4

Based on table 3.2, it can be seen that the midpoint of vaginal pH before being given boiled water of betel leaf 4.00 with a pH level of at least 4 and a maximum of 5 and a standard deviation of 0.438, whereas after being given a decoction of betel leaves the middle value of vaginal pH is 3.00 with a minimum pH level of 3 and maximum 4 and a standard deviation of 0.438.

After a bivariate analysis, normality of the vaginal pH data was tested before and after being given a decoction of betel leaf water, as listed in Table 3.3.

**Table 3.3**  
**Statistics Distribution Normality Test**

No	Variable	Shapiro- Wilk	
		N	P
1.	pH Before Intervention	44	0,000
2.	pH After Intervention	44	0,000

Based on table 3.3 above shows the results of the normality test that is  $p = 0.001$  which means the data is not normally distributed. Because the data is not normally distributed, the analysis test uses the Wilcoxon test (Dahlan, 2014).

#### Effect of Decoction vaginal pH levels

The betel leaf water decoction to results of bivariate analysis to see differences in vaginal pH levels before and after being given betel leaves decoction in young women can be seen from table 3.4.

**Table 3.4**  
**Differences in Vaginal Ph Levels Based on Wilcoxon Test**

No	Variable	Median	Diff	P
1.	pH Level Before	4,00	1	0,000
2.	pH Level After	3,00		

\*uji Wilcoxon

Test the analysis in table 3.4 using the Wilcoxon test, get the middle value before the vaginal pH before being given water decoction of green betel leaf 4.00, and the middle value after being given a decoction of 3.00 green

betel leaf. The difference in the vaginal pH level of the respondents before and after being given a decoction of green betel leaf is 1, indicating that there is a difference in the average vaginal pH level of young women in the Midwifery Dormitory of the Ministry of Health Poltekkes Pontianak before and after being given a decoction of green betel leaf which shows the influence of decoction green betel leaf water against vaginal pH levels.

#### Discussion

This study examines differences in vaginal pH levels before and after being given a decoction of green betel leaf. The way the tools and materials used to cleanse the female intimate organs both externally and internally greatly affect the vaginal condition. The use of tools and materials that are not in accordance with the condition of the reproductive organs results in many complaints occurring in the female reproductive organs, and most often is vaginal discharge. Normally, vaginal pH is between 3.8 and 4.2 (Syahlani, 2013). This means the vagina is acidic. This number must be maintained so as not too low or vice versa to be higher. If the vaginal pH is not balanced, mold and bacteria as a cause of vaginal problems will multiply rapidly. This situation can cause a variety of health problems in the vagina which are characterized by vaginal discharge.

Vaginal acidity has long been considered as one of the vaginal protective mechanisms. Soft vaginal healthy acidity has been shown to correlate with a reduced risk of chlamydia, trichomoniasis, urinary tract infections, and infection with genital mycoplasma and decreased bacterial transport in the introitus (Boskey, 2013). The pH balance of the vagina is acidic, to prevent infection, the acidic environment created by bacteria occurs normally. A healthy vagina produces fluid to cleanse and regulate itself, similar to saliva which cleanses and regulates the oral environment (Nurwijaya, 2009).

According to Dehcare (2013) there are several factors that cause an imbalance in the vaginal ecosystem, including oral contraception, diabetes mellitus, antibiotic use, menstrual blood, spraying fluid into the vagina (douching), hormone disorders (puberty, menopause, or pregnancy).

According to Bahari (2012) stated that in general, vaginal discharge can be caused by

---

several factors, namely lack of attention to the cleanliness of the female organs, washing the female organs in the wrong direction, very tiring physical activity, not immediately changing pads when menstruation, unhealthy lifestyle, psychiatric conditions that are experiencing severe stress, using cleansing soap to excessively cleanse the female organs, weather conditions especially humid weather, unbalanced hormonal conditions, often scratching the female organs and wearing tight underwear from synthetic materials.

The number of trigger factors that cause vaginal discharge so that the availability of drugs both pharmacologically and non-pharmacologically are used to treat vaginal discharge. Betel leaf is a non-pharmacological treatment, betel leaves contain essential oils up to 4% (consisting of hydroxycavikol, kavikol, estragol, methyl eugenol, karvakrol, terpenes, sesquiterpenes). Tannins, diastases, sugars and starches and kavibetol, allypyrokatecol, eugenol, eugenol methyl ether, p-cymene, cineole, csriophyllene, estragol, terpenene, sesquiterpene, phenyl, propane (Mursito, 2015).

According to Carolia and Noventi (2016) the mechanism of phenol as an antibacterial agent acts as a toxin in protoplasm, damaging and penetrating walls and precipitating bacterial cell proteins. The main components of astari oil consist of betle phenol and some of its derivatives including euganol allypyrocatechine 26.8- 42.5%, cineol 2,4-4,8%, mehyl euganol 4,2-15,8%, caryophyllen 3-9,8 %, hydroxy kavikol, kavikol 7,2-16,7%, kabivetol 2,7-6,2%, estragol, ilypyrokatecol 9,6%, karvacol 2,2-5,6%, alkaloids, flavonoids, triterpenoids or steroids , saponin, terpene, phenylpropane, terpinene, diastase 0.8-1.8%, and tannin 1-1.3%. At concentrations of 0.1-1% phenol are bacteriostatic, while at concentrations of 1-2% phenol are bactericide.

Based on the results of research conducted on 44 young women in the Midwifery Dormitory of the Ministry of Health Poltekkes Pontianak, obtained the distribution of vaginal pH levels before using leaf decoction green betel, which is a minimum pH level of 4, a maximum of 5, the middle value of vaginal pH is 4.00 and a standard deviation of 0.438. Distribution of bagina pH levels after using green betel leaf decoction, showed a minimum pH level of 3, a maximum of 4, a middle value of pH of 3.00, and a standard deviation of 0.438.

The results of analysis for differences in vaginal pH levels before and after being given a decoction of green betel leaf showed that there was a decrease in vaginal pH levels after being given a decoction of betel leaf water on young women in the Midwifery Boarding Office of the Ministry of Health of Pontianak. The results of this study are also in line with Maytasari's research (2010) entitled "Differences in Anti-Fungi Effect of Essential Oils of Green Betel Leaves (*Piper Betle* L), Essential Oils of Red Betel Leaves (*Piper Crocatum*) and V-Resilient Syrup Soap on In Growth of *Candida Albicans Vitro* "results of the study showed that based on the mean diameter of the obstacle zone, it was found that green betel essential oil at all concentrations resulted in the largest inhibition zone compared to Flukanazol 25µg of red betel, and V-betel essential oil on the growth of *Candida albicans* in vitro. (Quasi Experimental Design), that the decoction of green betel leaf is used to cleanse the female genitals, proven to be able to treat the vagina and avoid vaginal discharge. The content of phenol (karvacrol) and phenylpropane (eugenol and kavikol) in essential oils of green betel leaf serves as an antiseptic (bactericidal and fungicidal) which is very strong.

The results of this study showed the mean value of vaginal pH before administration of 4.00 green betel leaf decoction, and the middle value after giving 3.00 green betel leaf decoction. Decreasing the level of vaginal pH before and after being given a decoction of green betel leaf is 1 pH.

Based on the results of statistics using the Wilcoxon test obtained p value <0.05, concluded  $H_a$  was accepted and  $H_o$  was rejected. This shows that there is a difference in vaginal pH levels before and after being given a decoction of betel leaf water on young women in the Midwifery Dormitory of the Ministry of Health Poltekkes Pontianak, namely the average value of vaginal pH after being given a decoction of betel leaf water lower than before being given a betel green leaf decoction.

## CONCLUSION AND RECOMMENDATION

### Conclusion

Based on the results of research conducted on the effect of green betel leaf water decoction on vaginal pH levels in adolescent girls in the Midwifery Dormitory of the Ministry of



---

Health Poltekkes Pontianak, it was obtained as follows:

1. Vaginal pH levels before being given green betel leaf decoction (*Piper Betle L*) of 4.00.
2. Vaginal pH level after being given a decoction of green betel leaf (*Piper Betle L*) an average value of 3.00.
3. There is a difference in vaginal pH levels before and after being given a decoction of green betel leaf (*Piper Betle L*) which is a decrease in pH levels to become more acidic.

### Recommendation

From the results of this study there are suggestions that researchers can convey, namely the need to pay attention to the cleanliness of the female organs, wash the female organs in the right way, manage physical activity, change pads when menstruation (if the pads are full) and, have a healthy lifestyle, ironing underwear before use, use cleansing soap to clean the female organs properly, after cleaning, it should be dried with a clean cloth or tissue, using underwear that absorbs sweat, and wearing undressed underwear.

### REFERENCES

- Arikunto, S. 2010. *Prosedur Penelitian Suatu Pendekatan Praktek*. Jakarta: cipta
- Azizah, G. 2009. *Tips Sehat Sepanjang Masa*. Jogyakarta:In AzNa Books.
- Bahari, H. 2012. *Cara Mudah Atasi Keputihan*. Jogjakarta : Buku Biru
- Boyke, N. 2004. *Problem Seks Cinta Remaja*. Jakarta: Pt Bumi Aksara.
- Boskey, E.R. 2013. *Acid Production By Vaginal Flora In Vitro Is Consistent With The Rate And Extent Of Vaginal Acidification*. (<http://iai.asm.org/content/67/10/5170.full>) diakses 12 januari 2018
- Carolia, N, dan Voventi, W. 2016. *Potensi Ekstrak Daun Sirih Hijau (Piper Betle L.) Sebagai Alternatif Terapi Acne Vulgaris*. Fakultas Kedokteran, Universitas Lampung. (Diakses 3/1/2018)
- Dharma, K.K.2015. *Metodologi Penelitian Keperawatan Pelaksanaan Melaksanakan Dan Menerapkan Hasil Penelitian*. Jakarta: Trans Indo Media.
- Dahlan, S. 2014. *Statistik Untuk Kedokteran Dan Kesehatan*. Jakarta. Epideomiologi Indonesia.
- Donatila. 2011. *Hubungan Antara Pengetahuan Dan Perilaku Menjaga Kebersihan Genitalia Eksterna Dengan Kejadian Keputihan Pada Siswi Sma Negeri 4 Semarang*.Fakultas KedokteranUniversitas Diponegoro. (Diakses 3/1/2018)
- Dechacare, 2010, *Menghindari dan Mencegah Keputihan*. From:<http://www.Dechacare.co.id>. , Diakses tanggal 2 maret 2018
- Hidayat, S. 2015. *Kitab Tumbuhan Obat*. Jakarta: Agriflo(Penebar Swadaya Grup).
- Hidayat,A.A. 2007. *Metode Penelitian Kebidanan Dan Teknik Analisis Data*. Jakarta: Salemba Medika.
- Hanafi, H. 2004. *Keluarga Berencana Dan Kontrasepsi*.Jakarta : CV Muliasari
- Hermanto, N. 2006. *Herbal Untuk Kelurga Sehat Dan Cantik Dengan Herbal*:Elek Media Komputindo. Jakarta
- Indah, SY. 2011. *Cegah &Tngkal Kanker Servik*. Surabaya: TIBBUN Medika
- Jawetz., et al. 2007. Mikrobiologi Kedokteran
- Jawetz, Melnick,& Adelberg, Ed.23,Translation of Jawetz, Melnick, and Adelberg'sMedical Microbiology, 23thEd. Alih bahasa oleh Hartanto, H., et al. Jakarta: EGC
- Karim, A, dkk. 2016. *Studi Retrospektif: Vaginalis Bakterial*. Surabaya. Fakultas Kedokteran Airlangga. melalui <https://e-journal.unair.ac.id/index>.(diakses 23 february 2018

- Kusmiran, E. 2011. *Kesehatan Reproduksi Remaja Dan Wanita*. Jakarta: Selemba Medika
- Mursito. 2015. *Ramuan Traisional Untuk Pelangsing Tubuh*. : Penebar Swadaya. Jakarta
- Muhlisah, F. 2007. *Tanaman Obat Kelurga (Toga)*: Sari Agrisehat. Jakarta
- Manuaba, I.1998. *Ilmu Kebidanan Penyakit Kandungan Dan Keluarga Berencana Untuk Pendidikan Bidan*: Buku Kedokteran Bgc. Jakarta
- \_\_\_\_\_. 2009. *Ilmu Kebidanan Penyakit Kandungan Dan KB*. Jakarta: EGC
- \_\_\_\_\_, Ida Ayu Chandranita. (2009). *Memahami Kesehatan Reproduksi Wanita*. Edisi 2. Jakarta: EGC
- Moersintowati, dkk. 2002. *Tumbuh Kembang Anak dan Remaja*: Sagung Seto. Jakarta
- Moeljanto, R D, Mulyono. 2003. *Khasiat Dan Manfaat Daun Sirih* : Agromedia Pustaka. Depok.
- Maytasari, GM. 2010. *Perbedaan Efek Antifungi Minyak Atsiri Daun Sirih Hijau, Minyak Atsiri Daun Sirih Merah dan Resik-V Sabun Sirih Terhadap Pertumbuhan Candida Albicans Secara In Vitro*. Skripsi Fakultas Kedokteran Universitas Surakarta <https://eprints.uns.ac.id/6026/1/180081511201108201.pdf> (Diakses 3/1/2018)
- Nugraha, B. 2004. *Problem Seks Dan Sinta Remaja*. Jakarta: PT Bumi Aksara
- Nadesul, H. 2009. *Kiat Sehat Pernikahan*. Jakarta : Buku Kompas
- Notoadmojo, S. 2005. *Metodologi Penelitian Kesehatan* : Rineka Cipta. Jakarta
- \_\_\_\_\_. 2007. *Metodologi Penelitian Kesehatan* : Rineka Cipta. Jakarta
- \_\_\_\_\_. 2010. *Metodologi Penelitian Kesehatan* : Rineka Cipta. Jakarta
- Nurwijaya, H. dkk. 2009. *Cegah Dan Deteksi Kanker Serviks*: Elek Media Komputindo
- Ocviyanti, D. dkk. 2009. *Profil Flora Vagina Dan Tingkat Keasaman Vagina Perempuan Indonesia*. Jakarta. Fakultas kedokteran Indonesia. Melalui <https://s3.amazonaws.com/academia.edu.documents/38697614/94510081PB.pdf> (diakses 23 februari 2018)
- Pribakti. 2010. *Tips Dan Trik Merawat Organ Intim*: Sagung Seto. Jakarta
- Sari, W Dkk. 2012. *Panduan Lengkap Kesehatan Wanita*. Jakarta : Penebar Plus. Jakarta
- Saryono. 2008. *Metodologi Penelitian Kesehatan*: Mitra Cendikia. Jogyakarta
- Suryandari, D F. 2013. *Hubungan Pemakaian Sabun Pembersih Kewanitaan Dengan Terjadinya Keputihan Pada Wanita Usia Subur (Wus) Di Ddesa Karang Jeruk Kecamatan Jatirejo Kabupaten Mojokerto*. Politeknik Kesehatan Majapahit. (Diakses 3/1/2018)
- Sunyonto, D. 2012. *Statistika Kesehatan Analisis Data Dengan Perhitungan Manual Dan Program SPSS*. Yogyakarta. Nuha Medika
- Suwanti, Y. 2015. *Keputihan Pada Wanita Usia Subur Menggunakan Ekstrak Daun Sirsak*. ( Diakses 3/1/2018)
- Sudewo, B. 2012. *Basmi Penyakit Dengan Sirih Merah*: Agromedia
- Soemiati, A, Dkk. 2002. *Uji Pendahuluan Kombinasi Anti Jamur Infud Daun Sirih, Kulit Buah Delima, Dan Rimpang Kunyit Terhadap Jamur Candida Albicans*. Universitas Indonesia. Depok. (Diakses 3/1/2018)



- 
- Syahlanı. A, dkk. 2013. *Hubungan penggunaan kontrasepsi hormonal dan pengetahuan ibu tentang perawatan organ reproduksi dengan kejadian keputihan diwilyah kerja puskesmas pekauman.* Banjarmasin.  
Melalui:<https://scholar.google.co.id/scholar> (diakses 23februari 2018)
- Sulistiyowati, Dkk. 2016. *Perbedaan Efektifitas Penggunaan Daun Sirih Dan Bawang Putih Terhadap Fluor Albus.* Stikes Muhammadiyah Lamongan. ( Diakses 3/1/2018)
- Sumiati, dkk.2009. *Kesehatan Jiwa Remaja Dan Konseling.* Jakarta. Trns Info Media
- Sibagariang, Dkk. 2010. *Kesehatan Reproduksi Wanita.* Jakarta. Trns Info Media.
- Sova, W. 2010. “Perbedaan kejadian flour albus,” perbedaan-flour-albus.html, (<http://widiailmiah.blogspot.com/2018/1>), diakses 12 januari 2018
- Widyastuti, dkk.2011. *Kesehatan Reproduksi:* Fitramaya. Yokyakarta