



## The Effect of Red Betel Leaf Decoction on the Degree of Vaginal Discharge in Adolescents at the Pondok Pesantren Martaushshibyan, Cianjur Regency, Indonesia

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### ABSTRACT

Vaginal discharge is an unusual discharge other than blood from the vaginal canal, whether it smells or not, accompanied by itching or not in the local area. This study aimed to determine the effect of boiled red betel leaves on the degree of vaginal discharge in teenagers at the Pondok Pesantren Martaushshibyan, Cianjur Regency, Indonesia. This research design uses a one-group pretest-posttest experimental research design with a paired t-test with 30 respondents who carried out 2 measurements, namely measurements during the pre-test and measurements during the post-test. The results showed that there was a decrease in the degree of vaginal discharge before and after the intervention ( $2.23 \pm 0.11$  Vs  $1.13 \pm 0.12$ ) with  $p < 0.05$ . In conclusion, there is an effect of giving boiled water from red betel leaves on the degree of vaginal discharge of adolescents at the Pondok Pesantren Martaushshibyan, Cianjur Regency, Indonesia.

### 1. Introduction

Pondok Pesantren Martaushshibyan, located in Cianjur Regency, Indonesia, is an educational center that exudes rich cultural traditions and religious values. In an environment characterized by strong Islamic teachings, attention to adolescent health is an aspect that cannot be ignored. Throughout the world, adolescent girls, including in Indonesia, are often faced with important reproductive health problems, one of which is vaginal discharge. Vaginal discharge is a condition that often affects teenage girls. Although common, vaginal discharge remains a source of significant concern and discomfort. Hormonal changes that occur during puberty, imperfect self-care habits, or certain infections can trigger excessive or abnormal vaginal discharge. These obstacles not only impact

physical comfort but can also affect the quality of life and psychological well-being of teenagers.<sup>1-3</sup>

Red betel leaves (*Piper crocatum* Ruiz & Pav.) have long been known to have antimicrobial and anti-inflammatory properties, which can help overcome vaginal discharge problems caused by bacterial infections or inflammation. Red betel leaves contain active compounds, such as tannins and flavonoids, which have potential as natural antimicrobials. These antimicrobial properties can help inhibit the growth and spread of pathogenic microorganisms, such as bacteria and fungi, which can cause infections in the genital area. Therefore, the use of red betel leaves can help overcome vaginal discharge caused by infection with these microorganisms. Vaginal discharge can sometimes occur as a result of inflammation in the



genital area. Red betel leaves also have anti-inflammatory properties that can help reduce inflammation and the symptoms associated with it. This can have a relieving effect and reduce the discomfort that teenagers who experience vaginal discharge may feel.<sup>4-6</sup> This study aimed to determine the effect of boiled red betel leaves on the degree of vaginal discharge in adolescents at the Pondok Pesantren Martausshibyan, Cianjur Regency, Indonesia.

## 2. Methods

This study is experimental research with a one-group pre-post-test approach and uses primary data, namely measuring the degree of vaginal discharge of research respondents. A total of 30 research subjects participated in this study, where the research subjects met the inclusion criteria. The inclusion criteria in this study were teenage girls and mothers who experienced vaginal discharge at the Pondok Pesantren Martausshibyan, Cianjur Regency, Indonesia. Assessment of the degree of vaginal discharge is carried out using a scoring system. Score 0: No visible vaginal discharge. Score 1: Normal vaginal discharge, clear or white, no unpleasant odor, and a small amount. Score 2: Abnormal vaginal discharge, for example, yellow or green, has an unpleasant odor or is moderate in amount. Score 3: Very abnormal vaginal

discharge, with striking characteristics such as a very unpleasant odor, a very abnormal color, an unusual consistency, or a large amount. Score 4: Very severe vaginal discharge with bothersome symptoms, such as itching, pain, irritation, or swelling.

Red betel leaves were obtained from around the location of the Pondok Pesantren Martausshibyan, Cianjur Regency, Indonesia. Use 3 red betel leaves, then boil them in water until boiling for 15 minutes. Next, the boiled water is used to rinse the genital area where the vaginal discharge occurs at least 2 times a day for 7 days. Data analysis was carried out using SPSS version 25 software. Univariate and bivariate analyses were carried out in this study. Univariate analysis was carried out to present the frequency distribution of each test variable, and bivariate analysis was carried out to determine the relationship between the test variables, with a p-value <0.05.

## 3. Results and Discussion

Table 1 presents the effectiveness of the pre and post-test interventions. This study shows that the intervention of giving boiled red betel leaf water is effective in reducing the degree of vaginal discharge. There was a decrease in the degree of vaginal discharge after giving boiled red betel leaf water, and it was stated to be statistically different, p<0.05.

Table 1. Comparison of the degree of vaginal discharge before and after intervention.

| Variable                                | Pre-test  | Post-test | P-value* |
|---|-----------|-----------|----------|
| Scoring the degree of vaginal discharge | 2,23±0,11 | 1,13±0,12 | 0,001    |

\*T-test dependent, p<0,05.

Red betel leaves (*Piper crocatum* Ruiz & Pav.) contain the alkaloid-alloclrysin as one of its main compounds. Alloclrysin is an alkaloid compound that has been known to have certain pharmacological activities, including antimicrobial and anti-inflammatory properties. Alloclrysin has the ability to

inhibit the growth and development of pathogenic microorganisms, such as bacteria and fungi. Therefore, this compound has potential as a natural antimicrobial agent. In the context of adolescent vaginal discharge, these antimicrobial properties may help overcome infections which can be one of the



causes of abnormal vaginal discharge. In addition to antimicrobial properties, allocrysin also has anti-inflammatory activity. This means that this compound may help reduce inflammation in the affected area. In cases of vaginal discharge caused by inflammation, allocrysin can help relieve the symptoms and discomfort associated with this condition.<sup>7-9</sup>

Flavonoids are a type of phenolic compound that is generally found in red betel leaves (*Piper crocatum* Ruiz & Pav.). These compounds have a number of health benefits, including strong antioxidant activity and the ability to reduce inflammation. Flavonoids are known to have strong antioxidant activity. They can help protect body cells from oxidative damage caused by free radicals. Free radicals are molecules that can damage the body's cells and tissues, and they can play a role in various diseases, including premature aging and degenerative diseases. Apart from protecting body cells from oxidative damage, flavonoids also have the ability to reduce inflammation. They can inhibit the production of proinflammatory substances, such as cytokines and interleukins, which trigger an inflammatory response in the body. This makes flavonoids have the potential to reduce symptoms of inflammation, such as swelling and pain.<sup>10,11</sup>

Tannin is a phenolic compound that is often found in red betel leaves (*Piper crocatum* Ruiz & Pav.) and plays a role in giving this plant a bitter taste. Tannins have a number of pharmacological properties that may provide benefits in traditional medicine and herbal use. Among these properties is its potential as an antimicrobial and anti-inflammatory agent. Tannins can have antimicrobial activity, which is useful in inhibiting the growth and spread of pathogenic microorganisms, such as bacteria and fungi. This compound can help in treating infections that may cause vaginal discharge or other health problems. Therefore, the tannins in red betel leaves may contribute to the plant's antimicrobial properties. Tannins are also known to have anti-inflammatory properties that can help reduce inflammation in

certain areas of the body. In the context of vaginal discharge or other health problems involving inflammation, tannins may help reduce the symptoms and discomfort associated with inflammation.<sup>12,13</sup>

Saponins are compounds that have a number of properties that are beneficial in a health context. This compound is often found in various plants, including red betel leaves (*Piper crocatum* Ruiz & Pav.), and has properties that can support health. Saponin is a compound that is a surfactant, which means this compound has the ability to reduce the surface tension of water and can help emulsify fat. In a health context, the properties of this surfactant can help clean the surface of cells and body tissues, which can be beneficial in skin care, including reducing symptoms of irritation. Some types of saponins have antimicrobial activity, meaning they can help inhibit the growth and spread of pathogenic microorganisms, such as bacteria and fungi. The antimicrobial activity of saponin makes it have potential as an agent that helps in fighting infections. In addition to antimicrobial activity, some saponins also have anti-inflammatory properties. They can help relieve inflammation and symptoms associated with inflammatory conditions, such as skin irritation or inflammation of other body tissues.<sup>14,15</sup>

#### 4. Conclusion

There is an effect of giving boiled water from red betel leaves on the degree of vaginal discharge in teenagers at the Pondok Pesantren Martausshibyan, Cianjur Regency, Indonesia.

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