

# Differences In Lowering Blood Pressure Between Giving Infusa Of Salam Leaf (Syzyguim Polynatum) And Infusa Of Herba Celery (Apium Graviolens L) In Hypertension Patients To Pregnant Women At Puskesmas Balaraja

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## Abstract.

*Elevated blood pressure is a major factor for coronary and ischemic heart disease and hemorrhagic stroke, in addition to peripheral vascular disease, kidney disorders, retinal hemorrhages and visual disturbances. The aim of this study was to compare the level of effectiveness in reducing blood pressure in pregnant women who experience hypertension at the Balaraja Health Center by giving infusions of bay leaves (*Syzygium polyanthum*) and infusions of celery herb (*Apium graveolens*). This type of research is a quantitative research with the type of experimental method in this study is to compare the effectiveness of the infusion of bay leaves and celery leaves to lower blood pressure in pregnant women with hypertension. The results of this study indicate that there is a significant effect between giving bay leaf infusion to pregnant women with hypertension at Balaraja Health Center with an odds ratio of 0.667. and there is a significant effect between giving celery leaf infusion to pregnant women with hypertension at the Balaraja Health Center with an odds ratio of 1,500.*

**Keywords:** Hypertension, Bay leaf infusion and celery leaf infusion.

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## I. INTRODUCTION

At this time non-communicable diseases continue to increase and must be watched out for early on. Over the past two decades, there has been a global epidemiological transition which has resulted in a change in disease patterns from communicable diseases to non-communicable diseases (PTM) which include degenerative diseases, one of which is hypertension. (Sekeon and Andries 2018) Hypertension Is a health problem with a high prevalence and continues to rise. (Riskesdas, 2018). According to WHO data and the International Society of Hypertension (ISH), currently there are 600 million people with hypertension in the world and 3 million of them die each year. In 2000, more than 25% of the world's population suffered from hypertension. In the coming 2025, the number is expected to increase to 29% or 1.6 billion people (Suhardjono 2017).Elevated blood pressure is a major factor for coronary and ischemic heart disease and hemorrhagic stroke, in addition to peripheral vascular disease, kidney disorders, retinal hemorrhages and visual disturbances.

Several factors influence the occurrence of hypertension such as genetics, gender, obesity, stress, environment, loss of tissue elasticity and atherosclerosis, lifestyle and poor eating patterns such as smoking, alcohol, high salt consumption. Management of hypertension is done to prevent morbidity and mortality due to hypertension. Management of hypertension based on the nature of therapy is divided into 3, namely non-pharmacological therapy, pharmacological therapy, and herbal therapy. Management of hypertension with pharmacological therapy includes administration of conventional drugs. However, pharmacological treatment is relatively expensive and also sometimes causes unwanted side effects for sufferers (Harjo, Setiyawan, and Rizqie 2019).Various ways can be done to reduce pain from the symptoms it causes, one of which is to use herbal therapy such as bay leaves. Bay leaves are one of the leaves that are commonly used by housewives for flavoring and cooking fragrances. The benefits of bay leaves are not only used to add flavor to dishes, but can also be used as traditional medicine to prevent and cure several diseases in the body. The content of vitamins and minerals in bay leaves is very good for the health of the body. Bay leaves for herbal medicine have been known for a long time, but unfortunately they are not as well known as other herbal medicines. (Asih 2018).

## II. THEORETICAL STUDY

### A. Factors Affecting the Incidence of Hypertension in Pregnant Women

Hypertension in pregnancy is a condition when a pregnant woman's blood pressure is above 140/90 mmHg. It is estimated that around 5–10% of pregnant women worldwide experience hypertension in pregnancy. This condition usually appears around 20 weeks of gestation, but can appear earlier. According to (Bardja 2020) high blood pressure during pregnancy can be caused by various conditions, namely:

#### 1. Chronic hypertension

Chronic hypertension is high blood pressure that has occurred before pregnancy or before 20 weeks of gestation. This condition is often asymptomatic, so many pregnant women are not aware that they suffer from chronic hypertension. Chronic hypertension in pregnant women is often only detected when pregnant women undergo obstetric examinations.

#### 2. Chronic hypertension with preeclampsia

If chronic hypertension is not handled properly, pregnant women can experience preeclampsia. This condition is characterized by high blood pressure accompanied by protein in the urine. Chronic hypertension with preeclampsia usually occurs in the second or third trimester of pregnancy.

#### 3. Gestational hypertension

Gestational hypertension is an increase in blood pressure that occurs after 20 weeks of gestation. This increase in blood pressure is generally not accompanied by protein in the urine or organ damage. In pregnant women who experience this condition, blood pressure can usually return to normal after delivery.

### B. The Effect of Bay Leaves on Lowering Blood Pressure

Bay leaf (*Syzygium polyanthum*) is a type of herbal therapy used for various diseases, one of which is to treat hypertension. To reduce hypertension, 10 bay leaves and 300 ml of water are needed, then boiled until boiling and reduced to 200 ml and consumed 2 times a day in the morning and evening, 100 ml each. This is in line with research conducted by Wiraraja Medika 2018 with the results of the study showing that before being given treatment the majority of respondents were in stage III as many as 22 people (73.3%), then a small number were in stage IV with 2 people (6.7%). After conducting research, it was shown that after being given treatment, most of the respondents occupied stage II, as many as 28 people (93.3%), a small portion were in stage I, only 2 people (6.7%).

The results of the parried T test and T test obtained a significant value of 0.000 which is smaller than the error level  $\alpha$  of 0.05. so that  $H_0$  is rejected and  $H_1$  is accepted, which means that there is an effect of boiled bay leaves on reducing blood pressure in the elderly who suffer from hypertension in the working area of the UPT Puskesmas Guluk-Guluk, Guluk-Guluk District. Bay leaves contain chemicals such as essential oils, citric, euganol, tannins and flavanoids which are believed to be able to lower blood pressure, the mechanism of action of this bay leaf is to stimulate the secretion of bile so that fat will come out along with the intestine which then reduces fat lumps that settle in blood vessels so that blood flow becomes smooth and blood pressure will be normal.

### C. The Effect of Celery Plants on Lowering Blood Pressure

Celery (*Apium graveolens* L) is said to contain Apigenin which can prevent constriction of blood vessels and Phthalides which can relax artery muscles or relax blood vessels. These substances regulate blood flow, allowing blood vessels to dilate and reduce blood pressure. Celery is known to contain active compounds that can lower blood pressure, namely "apiin" and mannitol which functions like a diuretic. Celery leaves contain lots of Apiin and diuretic substances which are useful for increasing the amount of urine. This is in line with research (Lazdia et al. 2020) in which research used a quasi-experimental design with 10 research subjects. The data assessed are systolic and diastolic blood pressure. The mean systolic blood pressure after consuming celery leaves was 136 mmHg (SD = 10.750), lower than the average systolic blood pressure before consuming boiled celery leaves, which was 142 mmHg (SD = 13.984) ( $p > 0.05$ ). The average diastolic blood pressure after consuming boiled celery was 87 mmHg (SD = 4.830), lower than the average diastolic blood pressure before consuming boiled celery of 94 mmHg (SD = 9.661) ( $p < 0.05$ ).

### III. METHODS

#### A. Research design

This type of research is a quantitative research with the type of experimental method in this study is to compare the effectiveness of the infusion of bay leaves and celery leaves to lower blood pressure in pregnant women with hypertension. This research will be carried out using an experimental design, namely research in which at least one manipulated variable is found to study relationships and causation (Lati Sari, 2022).

### IV. RESULT AND DISCUSSION

#### A. Results of Analysis of Giving Bay Leaf Infusion to Pregnant Women

Bay leaves are spices that have antibacterial properties. Bay leaves have the potential as a preservative because they contain antibacterial compounds in bay leaves. Bay leaves have antibacterial compounds in the form of tannins, flavonoids, alkaloids and essential oils (Herliana, 2013). The results of the study on 30 (100%) respondents who were given bay leaf infusion 3x in 1 week and lasted for 4 weeks totaled 15 (50.0%) and obtained a P-Value of 0.042 ( $<0.05$ ) which means that there is a significant effect between giving bay leaf infusion on reducing blood pressure in pregnant women with hypertension with an OR value of 0.667, which means that  $H_0$  is rejected and  $H_a$  is accepted.

#### B. Results of Analysis of Giving Celery Leaf Infusion to Pregnant Women

Celery (*Apium graveolens* L.) is a plant originating from Europe and northern Asia (Widyastuti 2015). According to the historian of Botany, celery has been used as a vegetable since the XVII century or around 1640, and was only recognized as a medicinal plant scientifically in 1942. This celery plant can grow both in the lowlands and highlands (Thomas 1989). Based on research, the herbaceous plant celery (*Apium graveolens* L.) contains twice as much vitamin C as the vitamin C content in citrus fruits. Besides that, it also contains B vitamins, PP vitamins, vitamin E, and contains folic acid, phosphorus, potassium, and Zn (Pałgan et al 2012). In addition, celery contains a lot of phenolic acids such as caffeic acid, p-kumaric acid, and ferrulic acid. Meanwhile, the content of celery flavonoids consists of apigenin, luteolin, and kaempferol (Yao et al 2010).

### V. CONCLUSIONS AND RECOMMENDATIONS

#### A. Conclusion

Based on the results of the research and discussion regarding the administration of bay leaf and celery leaf infusion at the Balaraja Health Center, it can be concluded that:

1. The results showed that there were hypertension sufferers at the Balaraja Health Center, as many as 30 pregnant women 100%.
2. There is a significant effect between giving bay leaf infusion to pregnant women and suffering from hypertension at the Balaraja Health Center with an odds ratio of 0.667.
3. There is a significant effect between giving celery leaf infusion to pregnant women with hypertension at the Balaraja Health Center with an odds ratio of 1,500.

#### B. Suggestion

1. For Practice Land

The results of this study are a good input for improving the quality of midwifery services. Such services refer to the level of perfection of health services in creating a feeling of satisfaction in each patient and the procedures for administering them are in accordance with the established code of ethics and professional services.

2. For Practice Field Midwives

It is hoped that the results of this study can be used as an indicator for early detection of pregnant women in monitoring their blood pressure in order to minimize the occurrence of hypertension.

3. For further researchers

Future researchers must add independent variables and enrich theories and research journals both nationally and internationally as reference material so that they can examine other factors in more depth and accuracy.

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