

## **Literature Review: Potential of Secang Wood (*Caesalpinia Sappan* L) Decoction on Lowering Blood Pressure in Hypertension Sufferers**

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### **ABSTRACT**

Known as the silent killer because it frequently has no symptoms, hypertension, also known as high blood pressure, is a condition of the heart and blood vessels marked by a rise in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg. The World Health Organization reports that Indonesia is seeing an increase in hypertension patients. According to Riskesdas data, West Java is the second-most hypertensive province, with 39.6% of cases, behind South Kalimantan's 44.1%. Indonesia still has a high rate of hypertension, making it a public health issue. Antihypertensive medications are one method that hypertension patients utilize to control or treat their condition. However, using too many chemicals or medications over an extended period of time can have negative health effects and be rather expensive. There are further methods of treating hypertension, such as administering secang wood decoction, which has strong antioxidant effects and lowers blood pressure in hypertensive individuals. Using the narrative review model and the literature review approach, we searched for relevant articles both domestically and globally using Google Scholar and PubMed, which only includes 4 journals that meet the sample inclusion criteria and the last 8 years, from 2016 to 2023. Additionally, the articles used as samples were listed in a table and described in detail to clarify the current approaches. This research review's conclusion is that secang wood decoction can be utilized to treat hypertension in patients, in addition to treating diarrhea, fighting cancer, and decreasing cholesterol.

**Keywords:** Decoction; secang wood; blood pressure; hypertension.

### **1. INTRODUCTION**

A disorder of the blood arteries and heart abnormalities accompanied by elevated blood pressure is known as hypertension, commonly referred to as high blood pressure. Chronically elevated blood pressure is referred to as hypertension [1]. Meanwhile, high blood pressure is also known as the silent killer, according to the American Heart Association in the Ministry of Health (2018), because everyone experiences these symptoms, which can vary and are nearly identical to those of other diseases [2]. The signs include fatigue and headaches [3]. If the systolic blood pressure test results are greater than 140 mmHg and the diastolic blood pressure test results are greater than 90 mmHg, hypertension is deemed to be present [4].

39.6% of the world's population, or around 1.4 billion people, suffer from hypertension, according to figures from the World Health Organization. Since 2009, when there were 76.6% more male hypertension patients than females, this number has risen. West Java, with a 39.6% prevalence rate, was the province in Indonesia with the second-highest number of cases of hypertension in 2018 [5] [6]. According to the Sumedang Health Profile for 2021, there were 248,174 hypertension sufferers in Sumedang Regency, making the prevalence of the condition 18.33%. Cimalaka had the second-highest



incidence of hypertension, per the Sumedang Regency Health Profile for 2020 [7].

It is a public health issue because Indonesia still has a high rate of hypertension. Patients with hypertension undoubtedly use a variety of methods to control or treat their condition, with contemporary medicine or pharmacology being one of them. Long-term medicine or chemical use, however, carries a high price tag and may result in health issues. Additionally, not all people with hypertension can always afford antihypertensive medications, and taking these medications can be boring. In addition to pharmaceutical methods, non-pharmacological or conventional methods of controlling high blood pressure are also possible [8][9]. Treatment that uses therapy or natural remedies rather than chemical pharmaceuticals is known as non-pharmacological treatment [10] or alternative medicine that incorporates herbs or conventional medication [11]

Sappan wood (*Caesalpinia sappan*), one of the medicinal plants abundant in antioxidants in Indonesia, is another. All parts of the sappan tree have alkaloids, saponins, and tannins that may act as antioxidants, but the stems have the highest antioxidant activity and the highest phenolic content. For a number of illnesses, including hypertension, cataracts, dysmenorrhea, cancer, obesity, and blood vessel conditions including diabetic retinopathy, secang wood infusion can be utilized as a preventative measure. Secang plants (*Caesalpinia Sappan L.*), which have anti-inflammatory and anticancer properties, include polyphenols such as flavonoids and tannins that function as antioxidants. The sappan plant contains the flavonoids brazilian, sappanchalcone, and brazilian. It is understood that flavonoid chemicals' significant contribution to antiangiogenesis stems from their antioxidant capabilities [12]. One of the chemical components of the sappan plant is called polyphenols. Polyphenols are a class of naturally occurring substances in plants that have numerous health advantages. If administered, this chemical functions as an antioxidant that lowers blood pressure in hypertensive individuals. Research on the impact of boiling secang wood on lowering blood pressure in those with hypertension is expected to be published in 2021 [13]. Blood pressure was shown to change in the experimental group after receiving a sappan wood decoction, but not in the control group following the intervention. Because of the sappan tree's origins in Southeast Asia and widespread distribution throughout Europe and America, it is simple to find sappan wood in Indonesia. In addition to being used as a natural color, secang wood has medicinal uses as well. However, numerous studies are still required to support this [14].

According to a preliminary analysis of Google Scholar and Pubmed for the years 2016 through 2023, there were 369 articles about hypertension on Google Scholar and 74 on Pubmed. With the use of this literature review study, we can ascertain whether sappan wood decoction lowers blood pressure in hypertension patients.

## 2. METHOD

Utilizing the Google Scholar and PubMed databases, this study was written utilizing the literature review approach with the narrative review model. The keywords used in the literature search were decoction, secang wood, blood pressure, and hypertension. (Hypertension.). The inclusion requirements for publications published 8 years ago, specifically from 2016 to 2023, in Indonesian and English are entire texts whose contents correspond to the study's aims. Only 4 journals meet the example inclusion criteria. Entering keywords in publish or perish to make it simpler to find articles is the first stage in the data collection process. then chosen based on the desired parameters. Additionally, the articles used as examples were listed in a table and described in detail to clarify the current approaches.

## 3. RESULTS AND DISCUSSION

### 3.1 Results

**Table 1** provides a crisis analysis of the four research studies that served as samples for this literature assessment.

**Table 1.** Result literature review

No.	Title (researcher, year)	Sampling design and technique	Population and sample	Result
1.	“EFFECT OF SECANG DRINK (CAESALPINIA	Experimental with pre-post	39 Yogyakarta City	Yogyakarta City Hall employees who were

SAPPAN L.) ON PLASMA NITRIC OXIDE LEVEL AND BLOOD PRESSURE IN PREHYPERTENSION PEOPLES" [15]	test control group design.	officials suffer from hypertension.	exposed to the effects of boiling secang wood had a 61% decrease in systolic and diastolic blood pressure, compared to 39% in the control group.
2. "THE IMPACT OF FEEDING SECHANG WOOD BOIL (CAESALPINIA SAPPAN) TO THE ELDERLY IN TULUNGREJO VILLAGE, TRUCUK DISTRICT, BOJONEGORO REGENCY ON REDUCING BLOOD PRESSURE"[16]	Authentic trial using a pretest-posttest methodology with a control group	Simple random sampling yielded 38 respondents from the pool of 42 respondents.	The findings of this study revealed that majority (53%) of the participants in Tulungrejo village experienced normal height after receiving cooked sappan wood, with a p-significance of 0.038 and a Z value of -2.080, indicating that there was a blood pressure-lowering impact of this treatment.
3. "ROLE OF BEVERAGES FROM GINGER EXTRACT TO IMPROVE PUBLIC HEALTH" [17]	Using the reference study method. Primary data and secondary data are the two categories of data that are collected.	40 individuals were present at the research location, Perum Japan Asri in Japan Village, Sooko District, Mojokerto Regency	According to the study's findings, some of the components in ginger extract can use secang wood to prevent degenerative disorders, including hypertension.
4. " R. KLATEN's JAMU SERVICES IN NEW YORK STATES WITH INCREASE OF HIGH BLOOD URIC ACID IN TRADITIONALLY HEALTHY" [18]	Case study approach to descriptive research	60-year-old female	According to the study's findings, blood pressure dropped after participants took a herbal supplement for a month and had five checks.

### 3.2 Discussion

Based on the study's findings that drinking sappan wood can lower blood pressure, Yogyakarta City Hall officers were able to demonstrate that 11 out of 18 (61%) people with hypertension initially experienced a normalization of their blood pressure after being given a cup of sappan wood for four weeks. In contrast, 39% of those in the Control group experienced a decrease in TDS and TDD [13]. Between the intervention and control groups, there was no appreciable difference in the plasma NO (Nitric Oxide) administration of secang drinks. The findings indicated that majority (53%) of the participants in Tulungrejo village experienced normal height after receiving a sappan wood decoction, with a p-significance of 0.038 and a Z value of -2.080, indicating that feeding boiling sappan wood had an impact on lowering blood pressure in the elderly [16]. You can employ natural or non-pharmacological remedies to treat hypertension, one of which is sappan wood decoction. The findings demonstrated that certain of the components in ginger extract drinks can fend off degenerative illnesses. One such component is the antioxidant content, which can lower blood pressure, cholesterol levels, and prevent osteoporosis [17]. The study's findings indicated that there was a reduction in blood pressure after taking herbal secang for a month with five examinations, with the first examination's reading being

150/80mm/Hg and the fifth examination's reading being 125/75 mm/Hg. This indicates that there was a beneficial effect on lowering blood pressure after taking herbal secang [18].

According to the analysis of four study publications, secang wood decoction can lower blood pressure in those who have hypertension. Due to the presence of alkaloids, saponins, and tannins in secang wood that have the ability to act as antioxidants [19], Whereas sappan wood decoction can be used for a variety of diseases including high blood pressure, cataracts, dysmenorrhea, muscle fitness, gout, cancer, obesity, and blood vessel diseases like diabetic retinopathy, where the highest antioxidant activity is obtained from the stem part which also has the highest phenolic content.

#### 4. CONCLUSION

This review of the literature led us to the conclusion that hypertensive patients' blood pressure varied before and after receiving secang wood decoction. Thus, it can be concluded that the decoction of secang wood has the potential as an alternative method or non-pharmacological treatment because it has a high antioxidant content that can lower high blood pressure in hypertensive patients by drinking the decoction of secang wood twice daily for two weeks or more. Additionally, the boiled water of secang can also be used as herbal medicine for health drinks and can also be used to make secang tea.

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