

The effect of *Dayak* onion brewed water in reducing blood pressure and mean arterial pressure (MAP) in hypertensive patients

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Abstract

The World Health Organization (WHO) estimated that 1.28 billion adults aged 30-79 years worldwide suffered from hypertension. *Dayak* onion is an herbal plant found in Indonesia, particularly in Kalimantan and traditionally used to treat hypertension. The purpose of this study was to determine the effect of *Dayak* onion steeping water on the reduction of systolic-diastolic blood pressure and mean arterial pressure (MAP) in hypertensive patients. This study employed a quasi-experimental research design with a time series approach, utilizing a pre-post-test design with a control group. The sample included two groups (intervention and control) totaling 30 participants. The independent variable was the steeping of *Dayak* onion bulbs, while the dependent variables were blood pressure values and MAP. The instruments used were Standard Operating Procedures (SPO) *Dayak* onion herb SPO blood pressure measurement, SPO calculation of MAP, and a digital sphygmomanometer. Data analysis was performed using paired t-tests. The results of the paired t-test statistical analysis of systolic-diastolic values and MAP in each group revealed significant findings. In the intervention group, a significant result was obtained in the pre-post test difference test, with a $p < 0.05$ from day 1 to day 3 assessments. This suggests that *Dayak* onion steeping water had an effect on systolic-diastolic and MAP values in the intervention group. In contrast, the pre-post test in the control group yielded a $p < 0.05$ for systolic values on days 2 and 3, diastolic values on days 1 and 3, and MAP values on days 1, 2, and 3. This indicates differences in systolic-diastolic and MAP values in the pre-post assessments, although these differences were not evenly distributed across every day. The study found that *Dayak* onion steeping water had an effect on systolic-diastolic and MAP values in the intervention group. Thus, the use of *Dayak* onion steeping water, containing allicin, can be considered an approach for controlling hypertension in the realm of complementary and alternative medicine, utilizing natural ingredients for herbal therapy.

Introduction

An estimated 1.28 billion adults aged 30-79 years worldwide suffer from hypertension, with the majority (two-thirds) residing in low- and middle-income countries. Approximately 46% of adults with hypertension are unaware of their condition, and less than half (42%) receive a diagnosis and treatment. Only about 1 in 5 adults (21%) with hypertension have their blood pressure under control. Hypertension, often referred to as the silent killer, can wreak havoc if left uncontrolled, targeting vital organs and leading to heart attacks, strokes, kidney disorders, and even blindness.¹ Hypertension induces endothelial dysfunction, exacerbates the atherosclerotic process, and contributes to the instability of