



# The Effect of Giving Moringa Leaves Extract on the Reduction of Blood Pressure in Elderly Hypertension Patients in Ngrandah Village, Toroh District, Grobogan Regency

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**Abstract.** This research used to determine the effect of giving Moringa leaf extract on lowering blood pressure in elderly hypertension patients in Ngrandah Village, Toroh District, Grobogan Regency. The type of research that is used in this research is quantitative using a quasi-experimental research design with a Control Group Design approach. The sampling method that used in this study was Qouta Sampling (Judgment Sampling). It was found 26 respondents that were divided into 2 groups, namely 13 respondents of Moringa leaf extract as case group and the control group who consumed the drug, 13 respondents. The Results of this research is based on a computerized analysis with Paired T Test result, the effect of offering Moringa leaf extract on blood pressure reduction in elderly hypertension patients in Ngrandah Village, Toroh District, Grobogan Regency, obtained a value of  $\rho$  value of  $0.000 < \alpha (0.05)$ . Furthermore, using the Independent Test to get a value of  $\rho$  value of  $0.000 < \alpha (0.05)$ . Conclusions: From the results of the above research, it can be concluded that there is an effect of giving Moringa leaf extract on reducing blood pressure in elderly hypertensive patients in Ngrandah Village, Toroh District, Grobogan Regency.

**Keywords:** Hypertension · Moringa Leaf Extract · Decrease blood pressure

## 1 Introduction

Data from the World Health Organization (WHO) in 2015 showed that around 1.13 billion people in the world suffer from hypertension. While the results from Riskesdas in 2018 in Indonesia stated that 63,309,620 people had hypertension, the highest was in South Kalimantan (44.1%), while the lowest was in Papua (22.2%). Hypertension occurs in the age group 18–24 years (14.65%), age 25–34 years (21.47%), age 35–44 years (33.59%), age 45–54 years (45.87%), age 55.64 years (54.60), male sex is 34.83% and female is 40.17%. The prevalence of hypertension is known to be diagnosed by doctors as much as 12.35% and taking antihypertensive drugs as much as 7.02% in residents 18 years 2018 in Grobogan Regency / City. Based on data from the Central Java Provincial Health Office in 2018, hypertension is the most common disease suffered by the people of Central Java with a proportion of 57.10% (Riskesdas, 2018)

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WHO noted that 30–50% of health consumption is allocated to herbal ingredients. In Indonesia itself, the results of the Basic Health Research (Riskesdas), Ministry of Health in 2013 showed that 30.4% of the community had used traditional health services, of which 49% used herbal ingredients (Faisal, 2017). Moringa has a high potassium content, which is 259 mg/100 g of Moringa leaves, while the relatively low sodium content of Moringa leaves is useful and safe for people with hypertension, so it is very effective in preventing hypertension (Kintoko, 2018).

Traditional or non-pharmacological treatment of hypertension can use Moringa leaf extract or Moringa Aleifera Lam, Moringa tree can grow well in hot to tropical climates such as in Indonesia. This plant can traditionally be used as anti-bacterial, anti-cholesterol, laxative, anti-inflammatory, anti-tumor, anti-pyretic, anti-epileptic, anti-ulcer, anti-spasmodic and treat rheumatism. Moringa leaves also have properties to treat allergies, aches and pains, rheumatism, purulent wounds, and prevent hypertension (Yanti, 2019).

## 2 Method

The type of research used in this research is quantitative using a quasi-experimental research design with a Control Group Design approach. The sampling method used in this study is Qouta Sampling (Judgement Sampling). There were 26 respondents divided into 2 groups, namely the case group giving Moringa leaf extract 13 respondents and the control group taking medication 13 respondents. Analysis of the data using the Paired T Test with a significant value  $<0.05$  it said there was an influence and the Wilcoxon test with a significant  $<0.05$  said there was an effect. The research was conducted in August 2020 in Ngrandah Village, Toroh District, Grobogan Regency. The research instrument used was a tension meter, observation sheet.

## 3 Results

The results of the paired t test on systolic blood pressure obtained: p value (0.794)  $> 0.05$ , then:  $H_a$  is rejected,  $H_0$  is accepted with the conclusion ( $H_a$ ) that there is no effect of drug consumption on lowering blood pressure. This happens because there are several factors that affect the control group, namely the consumption of drugs that are not routine and the side effects of these drugs, while the Wilcoxon test results on diastolic blood pressure obtained p value (0.888)  $> 0.05$ , then:  $H_a$  is rejected,  $H_0$  is accepted with the conclusion ( $H_a$ ) that there is no effect of drug consumption on lowering blood pressure.

The results of the study of measuring systolic blood pressure that had been carried out using the Independent T Test showed that there was no significant difference between the treatment of giving Moringa leaf extract and respondents who took the drug. This is evidenced by the average result of given Moringa leaf extract with a value of 1.4077 and respondents who consume drugs with an average value of 1.6077 with a significance value of giving Moringa leaf extract of p (0.000) and a significance value of respondents taking drugs of p (0.000), it means that there is no difference in the effect between the administration of Moringa leaf extract and respondents who take drugs to reduce blood pressure in elderly hypertensive patients in Ngrandah Village, Toroh District, Grobogan

Regency. This means that this study does not know which one is more significant because the results are biased, that is, it cannot be seen which is more significant.

The results of the study of diastolic blood pressure measurement that have been carried out using the Mann Whitney test found that there was no significant difference between the treatment of giving Moringa leaf extract and respondents who took the drug. This is evidenced by the average result of being given Moringa leaf extract with a value of  $-18$  and respondents taking drugs with an average value of  $-3.8$  with a significance value of giving Moringa leaf extract of  $p(0.000)$  and a significance value of respondents taking drugs of  $p(0.000)$ , it means that there is no difference in the effect between giving Moringa leaf extract and respondents taking drugs on lowering blood pressure in elderly hypertensive patients in Ngrandah Village, Toroh District, Grobogan Regency.

## 4 Discussion

According to the researchers, based on the results of the pre-test and post-test data, it was found that Moringa leaves were more significant in the process of lowering blood pressure. Because in this study the respondents were elderly and these respondents believed more in herbal or traditional medicines than chemical drugs. So that the case group drank Moringa leaf extract regularly, in contrast to the control group respondents who took medicine irregularly, respondents from the control group only take medicine if the respondent feels a complaint.

This study is in accordance with research conducted by (Ervina & Ayubi, 2018) entitled The Role of Trust in the Use of Traditional Medicine for Hypertension Patients in Bengkulu City, the results of the study found that 68.4% of hypertensive patients had high confidence in traditional medicine. As many as 55.8% of respondents believe hypertension can be cured by traditional medicine. This is different from the study in Yogyakarta, 75.7% of hypertensive patients believed that hypertension could be cured by using traditional medicine.

## 5 Conclusions

From the results of the research above, it can be concluded that there is an effect of giving Moringa leaf extract on reducing blood pressure in elderly hypertensive patients in Ngrandah Village, Toroh District, Grobogan Regency.

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