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ANALGESIC EFFECTS OF ETHANOL EXTRACTS STEM LEILEM *Clerodendrum minahassae* Teijsm, and Binn, AtTHE WHITE RAT (*Rattusnorvegicus*) Benedicta I. Rumagit1*, Adeanne C. Wullur1, Lydia Claudia Tandawuya1 Pharmacy Department, Health Polytechnique, Ministry of Health, Manado, North Sulawesi, Indonesia dicta.farmasi@gmail.com
ABSTRACT Plant Leilem (*Clerodendrum minahassae* Teijsm, and Binn.) Is a plant particularly typical North Sulawesi Minahasa area.

Leilem rod contains flavonoids, tannins and saponin. Flavonoid role in suppressing the production of prostaglandins, which are the chemical mediators of pain. The purpose of this study was to test the analgesic effect of ethanol extract of stem Leilem, Concentration of 5%, 10%, 15% white rats (*Rattusnorvegicus*). Kind of experimental research conducted using Post Test Design With Control Group. The sample used Leilem stems are brown and hard.

Testing is done by dividing the 5 test groups, each group was given Na CMC 1% as the negative control group, three groups each to a concentration of 5%, 10%, 15% ethanol extract stem Leilem and Paracetamol suspension as a control group positif. Metode analgesic writhing test method. Data obtained from the amount of wriggling rats were raised then calculated the percentage of protection and analyzed descriptively. The results showed the percentage of ethanol extract stem analgesic protection Leilem (*Clerodendrum minahassae* Teijsm, and Binn.)

Concentration of 5%, 10% and 15% respectively were 80.56%, 88.89% and 90.97%. So that the conclusions obtained that ethanol extract stem Leilem dengan concentration of 5%, 10% and 15% can provide an analgesic effect in rats. Keywords: Analgesic Effects, Stem Leilem, Rats.

INTRODUCTION The development of the world of health in Indonesia so rapidly, including in terms of treatment, many drug discoveries that affect the progress of the world of Indonesia's pharmaceutical. Along with that herbal medicine is now more popular among the people, in addition to its nature that comes from natural herbal medicine is considered safe because of reactions or side effects caused lower.

In fact the utilization of medicinal plants in Indonesia is not directly proportional to the number of plants in Indonesia are so large. This is due to the lack of research that proves the effectiveness of medicinal plants that are utilized by local communities. Leilem plants (*Clerodendrum minahassae* Teijsm and Binn.)

Are typical North Sulawesi plants, especially the Minahasa area which is often used as a food source and as a traditional treatment by the community. Empirically, the part of Leilem that is utilized by the community is its leaf is efficacious as a worm medicine, abdominal pain and lung pain (Palobo et al, 2012). While the part of Leilem stem has not been utilized by the community because of unknown benefits Research conducted by Putrianti (2015) showed that there are content such as flavonoids, tannins and saponins on the stem Leilem.

Leaf Leilem is part of the genus *Clerodendrum* which has various important roles in the field of treatment such as anti-inflammatory, antidiabetik, and antibakteri. Activity of anti-inflammatory that is by inhibiting the release of substances called mediator pain, among others histamin dan prostaglandin E2 (Shrivastava and Patel, 2007). Flavonoid role in suppress the production of prostaglandins, which is a chemical mediator of the occurrence of pain (Robinson, 1995).

There is no use of stem Leilem as an analgetik of the community because there is no scientific evidence about the stem Leilem analgesic or anti pain. Lomboan (2015) observed that Leilem leaf can inhibit the growth of *Escherichia coli* bacteria at concentrations of 5%, 10% and 15% because the flavonoids contained therein can denature the protein and destroy the cell membrane of bacteria, hence the selected concentration is expected flavonoids contained in the stem Leilem can provide analgesic effect in animal test with stretching response. Wiggling is an unpleasant movement in the test animal when it feels a pain.

The research conducted by Winarti and Wantiyah (2011) on the test of analgesic effect of rhizome extract (*Boesenbergia pandurata* Roxb) in male mice was by injecting acetic acid intra-peritoneal after 30 minutes was treated and then seen the response of stretching interval of 5 minutes for 30 minute. The effect of pain on the test animal as a

result of acetic acid is the contraction of the abdominal wall, the head and leg are pulled back so that the abdomen touches the base of the space it occupies.

Based on this background, the researcher is interested to do the research of analgetic effect of ethanol extract of Leilem (*Clerodendrum minahassae* Teijsm and Binn.) On white rat (*Rattus norvegicus*). METHOD The type of research used is experimental research using Design Post Test With Control Group, in June 2016 in Pharmacology Laboratory Department of Pharmacy of Health Polytechnic of Health Ministry of Manado. The samples used were Leilem rod (*Clerodendrum minahassae* Teijsm and Binn.)

Taken from Watutumou Village II Kalawat Subdistrict of North Minahasa Regency. The subjects of the study were male white rat test (*Rattus norvegicus* L.) obtained from Pharmacology Laboratory of Pharmacy of Poltekkes of Kemenkes of Manado as much as 20 male mouse *Rattus norvegicus* divided into 5 test groups, each group consisting of 4 white mice.

The data obtained, that is the amount of white mouse stretch from each test group is calculated percentage of analgesic protection (analgesic effect) with Handerson and Forsaith equation. RESULTS Number of Wave and Percentage of Analgesic Protection

Kelompok Uji No.	Hewan Uji	Pengamatan tiap 5 menit selama 30 menit geliat	% PA	t1	t2	t3	t4	t5	t6	I (Na CMC 1%)
1	6	10 8 24 0 0 2	0	11	12	23	0	3	8	13 8 29 0 4 5 4 11 4 21 23 68 0
II (Suspensi Ekstrak Etanol Batang Leilem 5%)	5	69,45 7 - 1 12	0	13	63,89	8	4	4	88,89	Total 28
III (Suspensi Ekstrak Etanol Batang Leilem 10%)	9	3 4 4 - 2 12	1	13	63,89	88,89	10	0	100	11 - 2 - 2 94,45
IV (Suspensi Ekstrak Etanol Batang Leilem 15%)	13	2 4 2 1 - 9 75 90,97 14	0	100	15 2 - 2 - 4 88,89 16	0	100	Total 13		
V (Suspensi Parasetamol)	17	1 1 - - 2 20 - - 2 1 - 3 90	0	93,33	85 18 2 1 - - - 3 90 19 - - 6 - 3 1 10 66,67	0	100	Total 18		

DISCUSSION The sample was obtained by extracting the leilem rod using a reflux method with a 70% ethanol solvent which was dirotavapor and evaporated on top of a water bath.

The choice of reflux method because of the texture of the hard stem Leilem so that by this method of heat will speed up the extraction process in the presence of process repeats when compared with cold way and 70% ethanol solvent can easily enter into the cell plant material membrane (Tiwari, 2011). The study was conducted using 5 test groups, each group consisting of 4 mice.

The test group 1 was negative control, the mice were given 1% Na CMC solution, the

test group 2, 3 and 4 were respectively given Leilem 5%, 10% and 15% Leilem stem ethanol suspension as well as the 5 test group as positive control, the rat was given suspension paracetamol. The test was performed using the Sigmund method (geliat method) using male white rats as test animals, and glacial acetic acid as a stimulant for the formation of prostaglandins in the peritoneal fluid. Prostaglandins can cause pain in animals tested, it is characterized by the presence of stretching from rats.

Before the treatment, white rats are fed for 12 hours, to avoid the possibility of a food effect on the content of nutritious substances in leilem rods, which can affect the analgesic effects caused. Observation of the amount of stretching for 30 minutes every 5 minutes in table 1 shows that the amount of stretch in the test group as the negative control given 1% Na CMC solution is biggest, that is as much as 144 geliate compared to the amount of stretch in the test group given Leilem leaf extract and Paracetamol suspension .

While in the test group of Leilem ethanol extract test extract with 5% concentration showed that the amount of geliate caused the largest compared with Leilem stem extract concentration of 10% and 15%. It appears that the greater the concentration of ethanol extract of the given leilem rod, the smaller the number of strains indicated by the test animals.

The amount of stretching on the Leilem rod extract test group was 10% less than the positive control test group, whereas in the Leilem stem extract test group 15%, the amount of geliate was much less than the Paracetamol suspension as the positive control test group. The less the amount of stretching means the pain is felt the weaker or in other words the higher the analgetic effect produced by Leilem stem ethanol extract.

And vice versa the more the amount of stretching means the pain is felt stronger or in other words the lower the analgetic effect. The percentage of analgesic protection in Figure 3 shows that the suspension of 5%, 10% and 15% leilem ethanol extracts is calculated, then analyzed descriptively can be seen in figure 3.

has an analgesic effect, because according to Sirait et al (Puspitasari, 2003) a drug is said to have an analgesic effect when it is able to decrease the amount of rat strain 50% more than negative control, even at concentrations of 10% and 15% higher analgesic protection compared to Paracetamol suspension. This shows that the greater the concentration of suspension of Leilem stem ethanol extract the greater the effect of pain reduction.

This is because the higher the dose of the extract given the more active substances contained therein. Leilem rods that have been studied by Putrianti (2015) have flavonoids, tannins and saponins. Research conducted by Lomboan (2015) that Leilem leaves with concentrations of 5%, 10% and 15% can inhibit the growth of *Escherichia coli* bacteria because flavonoids contained in Leilem leaf can damage bacterial cell membrane.

The analgesic effect produced by the suspension of Leilem stem ethanol extract due to its flavonoid content, whose mechanism of action is to inhibit the action of the cyclooxygenase enzyme which is the first step in the formation of prostaglandins. The more flavonoid content in the extract of Leilem stem ethanol, the greater the inhibition of catalysis of cyclooxygenase enzyme by flavonoids so that the conversion of arachidonic acid into endoperoxide acid ultimately form prostaglandin substances which is a pain mediator also inhibited and the resulting pain is also smaller (Robinson, 1995).

Based on the calculation of the average percentage of analgesic protection, it can be described in the form of a diagram Average Chart Figure Percentage of Analgesic Protection CONCLUSION AND RECOMMENDATION Based on the result of the research, it can be concluded that Leilem (*Clerodendrum minahassae* Teijsm and Binn.) Concentration of 5, 10% and 15% ethanol extract can give analgesic effect on white rat (*Rattus norvegicus*).

Further studies of the effects of the Leilem ethanol extract (*Clerodendrum minahassae* Teijsm and Binn.) Such as anti-inflammatory and antipyretic.

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