

Activity Test Ointment Extract Ambon Banana Peels (*Musa Paradisiaca* L.) with Rabbit's (*Oryctolagus Cuniculus*) Combustio (Minor Burns)

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Abstract. Combustio (Minor Burns) are a form of tissue damage or loss caused by contact with heat sources such as fire, hot water, chemicals, electricity and radiation. This study aims to determine the administration of Ambon banana extract to cure burns. The extract is made by meseration using 70% ethanol. This study used rabbits divided into 5 groups: positive control group (mebo ointment), negative control group which (not treated) and 3 test groups given Ambon banana peel ointment with varying concentrations (5%, 10%, and 15%) on the basis of hydrocarbon ointments. The method of making mild burns using the intervention method by administering ethan extract ointment of the peel of Ambon banana for 15 days. Parameters observed included evaluation of ointment, identification of tannin compounds, and percentage of healing of burns. The results of the evaluation of the ointment containing the extract of ambon banana peel concentrated 5%, 10% and 15% fulfilled the requirements of the organoleptic test, homogeneity, pH, spreadability and stickiness. The results of the identification of compounds of ambon banana peel positively contain tannins characterized by the presence of a blackish green color. The results of analysts based on Friedman's hypothesis test revealed that the value of $p < 0.05$ then there was a difference in healing of burns in the group of time interval measurements and healing of burns. Where the healing of burns is the fastest, namely at the concentration of F3 ointment 15% with a percentage of wound healing 75% compared to positive control mebo with a healing percentage of 61.5%. It can be concluded that the Ambon banana peel extract ointment has healing activities for burns.

1. Introduction

Banana peels contain tannins. Tannins in general are part of pelifenol compounds which have a long chain molecular weight of more than 1000 and can form complexes protein. Based on its structure, tannins are divided into two namely hydrolysable tannins (*hydrolysable tannis*), and hydrolyzed tannins (*condensed tannins*). Tannins are used for the treatment of burns by prescribing protein and because of the presence of anti-bacteria (Nurmay. S *et al.*, 2016). According to Alifia (2007) ethanol extract of ambon banana peels at a concentration of 1 to 5% can cure burns on rabbit skin.

The treatment for burns is very different from the treatment of other injuries. In burns there is a bacterial infection with high pathogenicity, there is a lot of dead tissue, expels a lot of water, serum and blood and requires tissue to close, considering burns are usually in the form of open wounds. The speed



of wound closure will be very important in terms of burn treatment, considering that the longer it opens it will be very likely to be sustained infection. Increasing the dose of use is very possible to accelerate the process of healing burns. In this study ethanol extracts will be used with concentrations of 5%, 10% and 15%.

2. Material and Methods

The materials used in this study were ethanol extracts of ambon banana peels 5%, 10% and 15%, as well as vaseline ointment bases. Some test animals in the form of rabbits that have received certain treatment are analogous to minor burns. The study of this form of intervention study aimed to determine the test activity ointment extract ethanol banana peels Ambon (*Moses Paradisiaca L.*) for Combusta on rabbits. Concentration of banana peel extract was made with various concentrations of 5%, 10% and 15%, positive control used was mebo ointment and negative control without being given anything. In this study the activity of banana peel extract ointment activity was tested against minor burns which were tested by intervention on test animals in the form of local rabbits, the parameters observed were reduction in burn area and percentage of burn healing.

This research was conducted by dividing 15 rabbits into 5 groups: the first group was positive control given mebo ointment, second was negative control without treatment, third group was ointment with a concentration of 5%, the ointment group was 10% and the fifth group was with a concentration 15%. The process of induction of burns is done by each rabbit shaving his fur in the left and right thigh area about 5 cm, then anesthetized locally using 2.5% lidocain ointment to reduce pain when induced and induced heat *Rafiky'S. Toll Pressure Test* with a temperature of 90°C for 5 seconds. The tool is in the form of a metal plate with a diameter of 2 cm which is connected to a heat element which has a power of 40 watts with a voltage of 220 volts. Provision of burn ointment is done topically by applying on the wound according to the treatment group, administering the ointment every day, from day 1 to day 15 is done twice a day every morning and evening.

The parameters of the formation of burn area by measuring barracks daily using a ruler and doing percentage of burn healing. The area of the initial burn after making the wound and the area of the final wound is the area of the wound on the last day of observation. Burn measurements were made after a day after administering the ointment. The area of the initial burn that becomes the percentage of wound healing is the wound a day after the rabbit has been injured, because after 24 hours the stability of the wound area (Firmani, 2010). Wound can be declared healed if the wound area undergoes epithelialization as a whole and no longer needs treatment (Schmidt, et al 1991 in Maranty,i 2016).

3. Results

Based on observations of average burn healing results from measurements of the reduction in burn area in all treatment groups on day 1 to day 15, it was found that each treatment showed a decrease in burn diameter. Positive mebo ointment group showed a decrease in the diameter of burns fast enough, negative control group aimed at decreasing the wound diameter for a long time, the ointment banana skin extract ointment concentration 15% decreased wound diameter faster compared to the positive control group. see the figure 1.

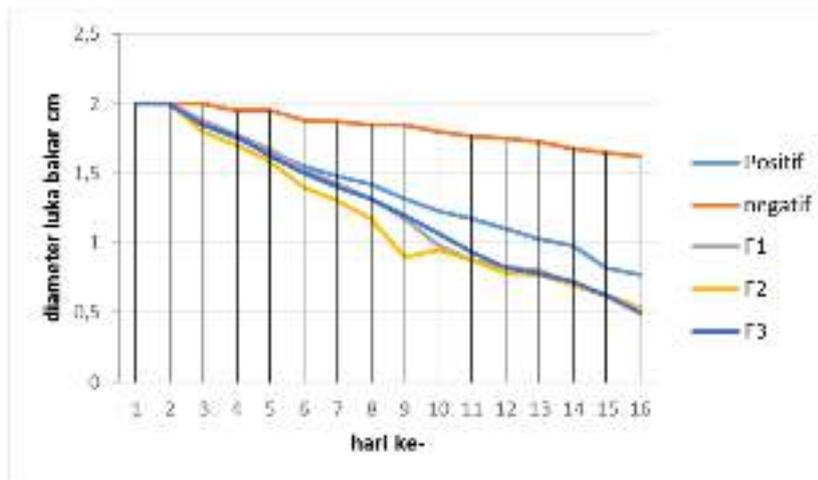


Figure 1. Burn Test Activity Results

It was seen that the treatment of ointments with a concentration of 15% experienced the most rapid healing of burns when compared with other treatment groups. The wound process consists of 3 phases, namely the inflammatory phase, the proliferation phase, and the healing phase. Phase inflammation which is characterized by the presence of swelling, the phase of proliferation is characterized by the formation of exudates and fibroblasts which looks like a crust on the part above the wound, and the phases of healing are characterized by the formation of a network of new which means that the wound had shrunk or cured.

The process of inflammation occur until 2 days after the occurrence of the wound, the wound is no longer characterized by wet and began to dry up. Because the inflammation is not going to happen the process of healing wounds. Wounds will remain a source of pain so that the process of inflammation and wound healing will tend to cause pain. Inflammation serves to control bleeding, prevent the entry of bacteria, removes dirt from the network that cuts and prepares the process of healing continued. Phase of healing is the proliferation of which is characterized by the formation of tissue granulation in the wound burn occurs mostly average rabbit on the 3rd day and began to experience a reduction in the diameter of the burn on the 3rd day, whereas in the negative control rabbit the shrinkage of the wound diameter lasted long enough because there was no administration of the wound so the burn was inflamed. In Figure 1, day 1 and day 2 show that the wound in rabbits still has no healing activity that is marked by no change in the diameter of the wound and the appearance of swelling in the wound. Wound healing began to be seen on the 3rd day until the 15th day which showed the formation of a layer of crust that made the wound diameter dry and began to peel little by little on the edges of the wound so that the wound healing effect was seen in rabbits.

Table 1. Percentage of Average Burn Healing

Treatment group	Days				
	3	6	9	12	15
Positive	12.5%	26%	38.5%	48.5%	61.5%
Negative	2.5%	6.5%	10	13.5%	19%
F 1	11%	29%	51%	60%	73.5%
F 2	15%	35%	52.5%	61.5%	73.5%
F 3	11.5%	30%	46.5%	61%	75%

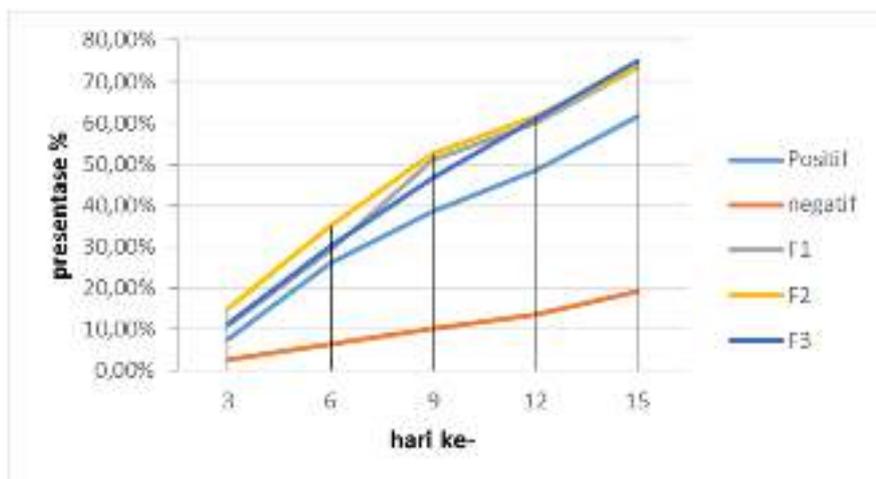


Figure 2. Percentage of Average Burn Healing

In table 1 and figure 2, the average percentage of healing of burns, the fastest healing of burns is F1 ointment with a concentration of 15% on the 15th day by 75% because the F1 ointment extracts more weight is suspected to contain ambon banana peel extract containing compounds tannins are able to heal burns by presenting protein and because of the presence of antibacterial and strengthened by Masduki (1996) in Tria, et al (2017) which states that tannin compounds are useful as an antiseptic and also treatment for burns by presenting protein and because of the presence of power the antibacterial. On day 3 showed that the wound burn in rabbits already are at the stage of proliferation. Granulation tissue is a combination of cellular elements including fibroblasts and inflammatory cells, which together occur with new capillaries scab appears the first time is significant in the day 4 and reached the peak on the 15th. So that on the 5, all groups of treatment and group control to experience the healing that is linear. From day 3, burns amended increasingly smaller diameter, the negative control group experienced a change in diameter wound long enough because without medication.

The negative control burn group was dry on the outside but the internal wound remained wet when the scab was removed. So it can be stated that the burn must be done locally or treated. Analysis of variations in changes in the diameter of the burn area is used to see whether there is a difference in the effect of the test ointment namely F1 ointment with 5% concentration, F2 with 10% concentration, F3 with 15% concentration, positive control and statistically negative control using *Shapiro Wilk* normality test because the number of samples < 50. Based on appendix 6 test of normality it is known that the sig standardized residual values of each sample differ, then all of these variables are not normally distributed because some samples are < 0.05 while the normality test is considered normal if the sig value for all variables is > 0.05. Therefore this research data analysis must use non-parametric statistical methods with the Friedman test. Based on the Friedman hypothesis test in Appendix 7 it is known that. Asymp Sig value of 0,000 < 0.005. Then there are differences in burn healing in the group of time intervals measuring diametric burn healing. Where the most rapid healing of burns is in the ointment F3 concentration of 15% with 75% wound healing percentage, F2 concentration of 10% percentage of burn healing as much as 73.5%, F1 concentration of 5% percentage of burn healing as much as 73.5%, positive control percentage of burn healing by 61, 5%, negative control 19%.

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