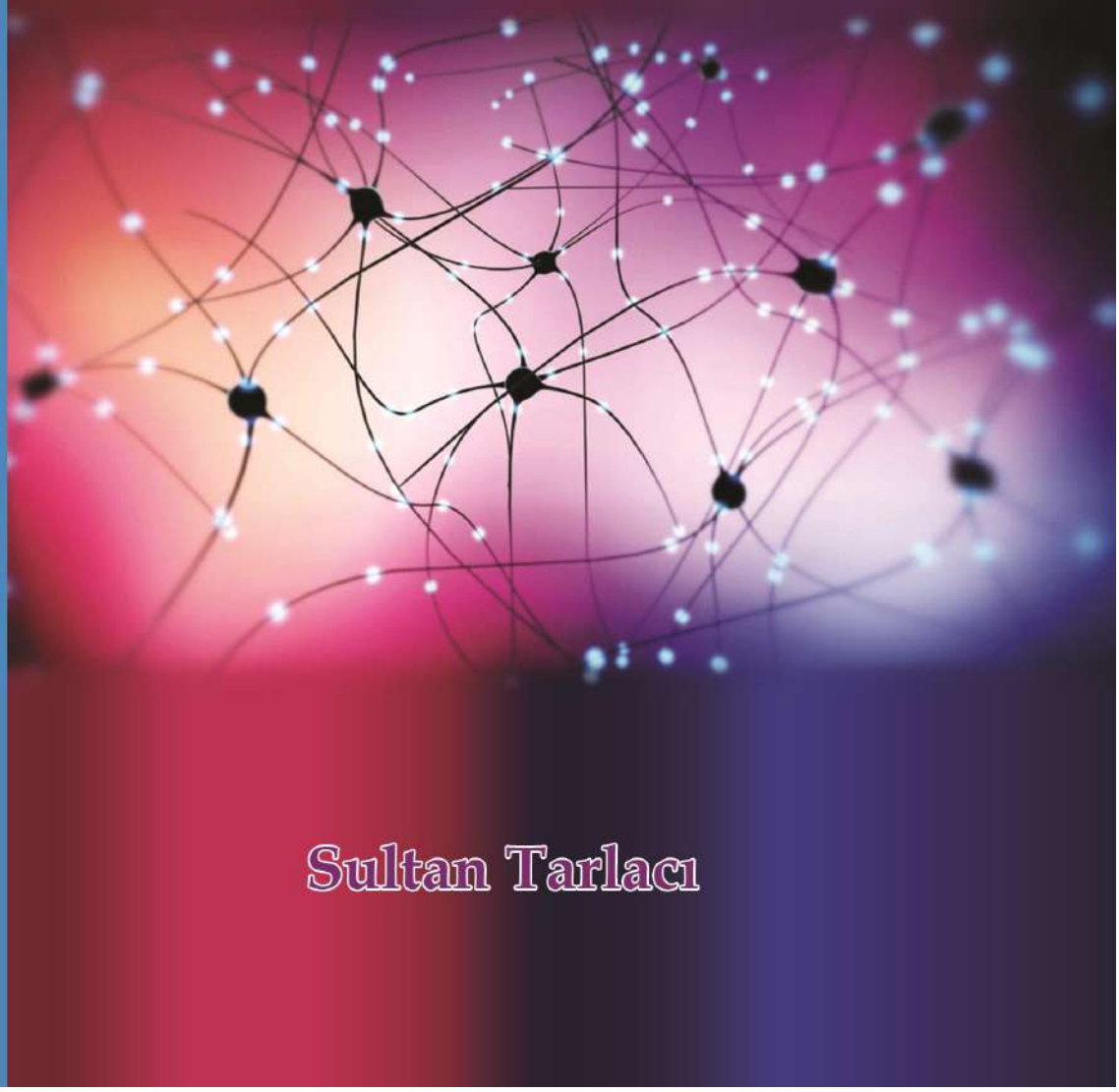
NeuroQuantology
An Interdisciplinary Journal of Neuroscience and Quantum Physics
ISSN 1303 5150

Quantum Physics and its Relation to the Nervous System



Sultan Tarlacı

AnKa Publisher

Volume 20, No 22 (2022)

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THE ACTIVITY OF EXTRACT VISCOUS ETHANOL At A NEW KIND OF FOREST PANDANUS (*Freycinetia sessiliflora* Rizki) ON THE GROWTH OF THE BACTERIA *Streptococcus mutans*

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ABSTRACT

A new kind of forest of the pandanus *(Freycinetia sessiliflora* Rizki) is one species found in the year 2015 on mount passi west Kalimantan. The researchers found the pandanus new species that is very different from other pandanus. The results of skrinning phytochemical leaves of the pandanus (*Freycinetia sessiliflora* Rizki) containing a compound of a metabolite sekunder namely an alkaloid , flavonoid , terpenoid-steroid , saponin , phenol and tannin. Based on secondary these compounds contained so done research to test the activity of the pandanus extract bacteria *Streptococcus mutans*. Purpose of the study to find out how much the inhibition of pandan extract on the growt of *Streptococcus mutans* bacteria.

Plant extracts pandanus in get maceration with a solvent use of ethanol to achieve a extract will be used to test the activity of obstruent against bacteria *Streptococcus mutans* by using the method discs kirby-bauer disk. Extract pandanus made in 5 concentration different the 5 % , 10 % , 15 % , 20 % and 25 %. Then it will be the measurement of clear zone formed about paper discs .Analysis by anova data in one direction with the levels of trust 95 %.

Result shows that of a new kind of pandanus against bacteria Streptococcus mutans with an average diameter obstruent concentration 5% of 10,86, mm the concentration of 10 % of 11,46, mm the concentration of 15 % of 11,8, mm the concentration of 20% of 12,24 mm and the highest 25% of 12,9 mm.

Key word : *Freycinetia sessiliflora* rizki , a new kind of pandanus extract, *Streptococcus mutans*

INTRODUCTION

Pandanus is plants often used its leaves. Pandanus included in the family pandanaceae consisting of several marga namely pandanus ,sararanga , freycinetia , martelidendron and benstoneana. Have been found pandan that including marga freycinetia in west kalimantan cover an constitute a single species with the new one which there are on the hill and fortified passi singkawang , pandan until now from its name *Freycinetia sessiliflora* rizki . Pandanaceae has long been known and used not only by the people in indonesia , but also by the world community well as an ornamental as well as another function . According to stone (1976) , the plants freycinetia having uses for man. Roots hanging old, mine used to make in addition plants is also the plants producing a scented oil derived from cobs flowers. Based on empirical data, in many places the tunny edible flowers after steamed. The leaves the tuner of the cob in red lights can be used as a red dye to spring from china for example off Gaudichaudii (heyne, 1927). Leaves of the pandanus *freycinetia sessiliflora* Rizki compounds containing an alkaloid of a metabolite , flavonoid , terpenoid-steroid , saponin , of phenol and tannin . Based on secondary metabolite compounds contained by the pandanus, then pandanus *freycinetia sessiliflora* Rizki have efficacy and the benefits that can be developed in the health sector, pharmacy, biology and medicine. Research Mardiyaningsih, A (2014), extract ethyl acetate leaves pandanus fragrant could hinder the growth of bacteria *Streptococcus mutans* with an average diameter zone obstruent 10 mm. 11,33 mm. Then extract mixture of etanol-ethyl acetate (1:1 v/v) can also inhibit bacterial growth *Streptococcus mutans* with rata- rata diameter zone obstruent each 13,33 mm and 15,67 mm . Extract ethyl acetate and blend ethanol ethyl acetate is probably capable of filter antimikrobial active compounds having of the character (Fitri,2019) .

MATERIAL AND METHODE

The tools used in this research among other: autoclaf (american 75x) , the stem a stirrer , a basin , a petri dish , enkas , erlenmeyer (pyrex) , a beaker a cup piece of pyrex) , a measuring glass (piece of pyrex) , an incubator (memmert) , spritus lights , a period of mizzen (insize) , filter paper , paper covers , pipet (dragon med) micro , the balance of analytic (hwh) , an oven (memret of incubator in30) , ose , a tube the reaction (pyrex) , a jar glass and vacum rotary evaporators (scilogex). Materials used in this study included: aqua pro injection , amoxicillin as control positive , bacteria *Streptococcus mutans* , ethanol 96 % solution NaCl physiological , medium Muller-Hinton Agar (MHA) , pandanus the *F . sessiliflora* Rizki. Sample forest pandanus *F . sessiliflora* Rizki that has been smoothed inserted into toples glass .Then poured solvent ethanol 96 % 3:1 , and closed and left for 3x24 hours , while often stir. The results maceration filtered

using flannel , lees then squeezed to achieve extract liquid ethanol. Extract liquid ethanol concentrated using rotary evaporators at a temperature 40°C. Congelation was done until obtained extract viscous .The calculation randemen extract done. Extract ethanol pandanus forest. *F. Sessiliflora* Rizki will be made in each 5 %, 10 %, 15 %, 20 % and 25 % b/v made by means of weighing extract pandanus forest *F.sessiliflora* as many as, 0,5 g, 1 g, 1,5 g, 2 g, 2,5 g and each put in a pot ointment already contains aqua pro injection to 10 ml and shake until homogeny. Sterile filter paper 1 diameter cm which has prepared soaked in an aqueous solution of each sample in aseptic 15 for minutes. Then ready to laid on a petri dish that contains MHA medium.

Testing of an obstruent extract ethanol pandanus forest. *F sessiliflora* Rizki made with use the diffusion. filter
paper the suspension bacteria is poured into
1 mL in a petri dish then added 10 ml medium Muller-Hinton Agar (MHA) sterile to have cooled to a temperature 40^{o}c-45^{o}c. Petri glass dish to shut and stir mixed, homogeneous and left to freeze. Next, filter paper that has been in soak in the sample in each concentration laid on the surface medium Muller-Hinton Agar (MHA) who already contains the bacteria then di Incubated inside an incubator at a temperature 37 ^{o}c for 24 hours with an inverted position.

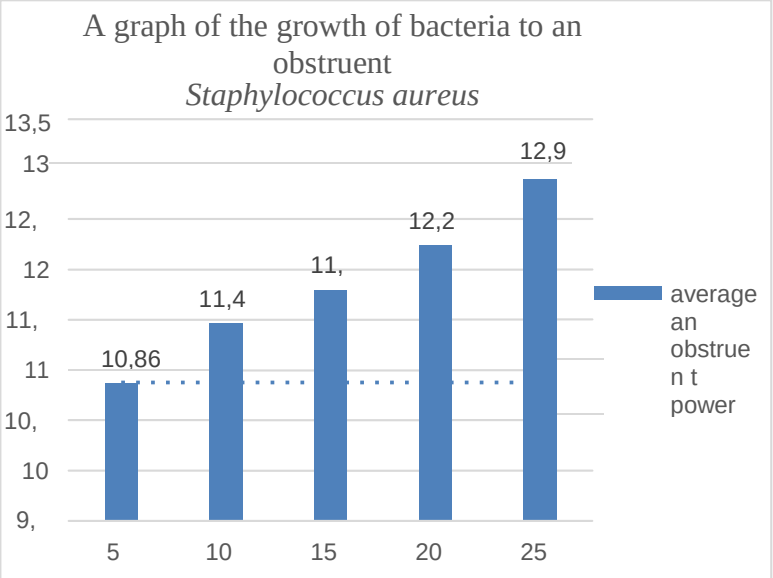
The determination of obstruent the growth of bacteria test is performed by measuring area around strain of paper .The observation is made after inkubated in an incubator for 24 hours using mizzen a term
, next clear zone formed on each one discs measured by 3 different sides , then in rata- ratakan , with calculation of the value of the main scale plus result of scale nonius with the precision.

RESULT

The extract of the new pandan varity can be seen in Table 1.

The table 1: table the testing of pandanus extract new forest species (*Freycinetia sessiliflora*. Rizki) on the bacteria *Streptococcus mutans* with the incubation period for 2x24 hours.

Concentration	Replication I	Replication II	Replication III	Total (mm)	Average (mm)
5%	11.13	10.6	10.85	32.58	10.86
10%	11.68	11.63	11.08	34.39	11.46
15%	12.03	11.36	12.01	35.4	11.8
20%	12.15	11.96	12.61	36.72	12.24
25%	13.29	12.38	13.03	38.7	12.9
Control positive	15.83	14.75	16.9	47.48	15.82
Control negative	-	-	-	-	-



DISCUSSION

The sample used in this study is pandanus forest species new latin name *Freycinetia sessiliflora* Rizki. Which sample taken from mount Passi, Singkawang. West Kalimantan province. Sample and processed into simplisia dry with a heavy wetness 1 kg chopped to ease, process of drying then dried using dry cabinet 3 during the day and get severe dry 224,81. grams. Simplisia produced to ease the process of diffusion of an active substance to a solvent

, then extracted by a method of maceration because this method either used efforts to draw a substance efficacious and it is the sustainability and warming does not hold in heating , as well as simple in construction and the tools used . Solvent used to maceration are ethanol 96%. Solvent ethanol used for universal that can be pulled polar substance and non polar . Illegal minimarts simplisia macerated for an hour ago filtrat obtained evaporated using evaporator rotary to get the randemen extract 18,28 % (<10%.). The results of randemen or show effectiveness at the time of the extraction . Due to the stability of much value yield extraction nor the process then it would be more effective

. This time influenced by, extraction a kind of, filter used as a solvent size of particles , and the length of the method of extracting (Leksono, et al 2016

).

Antibacterial activity test was preceded by process of sterilizing for the purpose of kill microorganism and prevent the incidence of contamination microbes . Glass was autoclave sterilization tools for having the same time sterilization is a relative short and effective for tools glass having a cavity. Next is the restoration of bacteria to bacteria get active and prevent damage to bacteria. Before done by bacteria with antibacterial activity suspense on bacteria nacl physiological test aimed at diluting the bacteria that can spread flattened and homogenized. Testing an obstruent extract resources viscous ethanol pandanus the forest a new kind of (*Freycinetia sessiliflora* Rizki) on the growth of the staphylococcus bacteria aureus by using 5 percent concentration , 10 % , 15 % , 20 %

, and 25 % . Microbiology who test run based on the disc for pour it use .Was used in the testing positive and negative control

, as a control positive for the negative amoxicillin and control the use of aqua pro injection .Then incubated for 24 hours and 48 hours at a temperature 37 C^{o}

Based on observation after

inkubated 2x24, for hours extract leaves pandanus forest this new species have a obstruent about the bacteria *Streptococcus mutans* zone and there are clear at concentrations that has been in ujikan.The diameter of an obstruent. 1 can be seen in table. Based on table 1 can be seen that each concentration can extract inhibiting the growth of
bacteria *Streptococcus mutans* .Each concentration extract inhibiting the growth of bacteria *Streptococcus mutans* with an average concentration of 5 % the diameter of an obstruent 10,86 mm , the concentration of 10 % as much as 11,46 mm
, the concentration of 15 % as much as 11,8 mm , the concentration of 20 % as much as 12,24 mm and highest concentration of 12.9 mm. 25 %. The clear formed by samples from the bacteria *Streptococcus mutans* can be seen in. Figure 1.

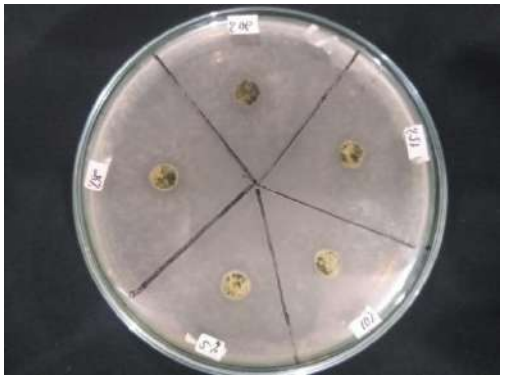
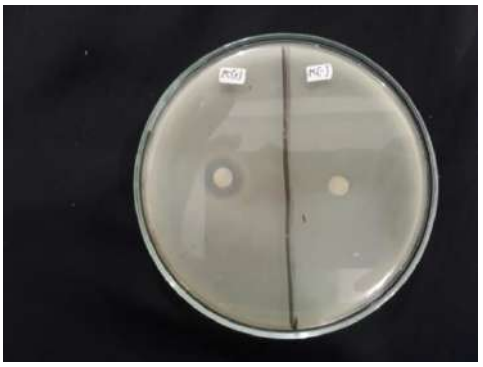


Figure 1 Inhibition Bacteria *Streptococcus mutans*

To control (+) used antibiotics amoxicillin of the penicillin (ß-laktam) which the observation is made for 48 hours . An obstruent zone diameter measurement result in bacteria Streptococcus mutans with an average 15,82 mm. clear control zone formed by positive and negative against bacteria *Streptococcus mutans* can be seen in the picture below.



As antibiotics amoxicillin synthesis capable of forming an obstruent diameter zone on all bacteria. Amoxicillin having broad spectrum of work covering many gram- negative bacteria and garm-positive (Tjay, et al , 2007).
Amoxicillin mechanism kill bacteria in a inhibits the synthesis of the formation of peptidoglikan the cell membrane in three phases .The first and second happened to cytoplasm that is disturbing synthesis amino acid with the addition of specific amino acids (l-alanine , d-glutamic , l- lysine)
.The third stage occurring

outside a cell to complete cross-link the sub new unit .

All antibiotics the beta -laktam is selective inhibitor against synthesis bacterium cell wall thus active on bacteria that in phase growth . An early stage with the antibiotic drugs in binding will begin with the bacterial cell receptor protein fastener penicillin (pbps = penicillin-binding) proteins. After the drug attached to one or more the receptors transpeptidasi amounts

of will and then synthesis peptidoglikan amounts of will. The next stage isinaktivasi and loss of a enzyme autolitik. in the cell walls.The consequence is that activation lytic enzyme will cause lysis bacteria.

An obstruent formed at the power plant extracts pandanus forest species because this new active compound. Contained there in the compound has a the obstruent against bacteria *Streptococcus mutans*. Active compounds contained therein (flavonoid , saponin and tannin).

Is the largest of flavonoid.compound of phenol a compound bioaktif is allegedly. antibacterial potential as a compound Biological compounds flavonoid activities carried out against bacteria in their cell walls of bacteria which consists of lipids and amino acids will react with an alcohol to compounds flavonoid. According to the pendit. et al(2016), said that a mechanism is flavonoid as antibacterial way hinder, synthesis of nucleic acids inhibiting the function of a cell membrane, and impeded. energy metabolism.

Besides flavonoid ,saponin having broad spectrum antibacterial activity which mechanism it works in a destructive manner plasma membrane bacteria with ways to improve the cell membrane bacteria. Saponin diffuses through a then

raises the cytoplasm of so as to interfere with and reduce stability of the membrane and the cause to the cytoplasm of leaking out of cells (Hopkins , 1999) .

A compound tannin is a compound bioaktif owning amount minimize highest other compound .The ability of tannin as an antibacterial seen from its action against a membrane (Marfuah, et al , 2018) .Tannin have mechanism work which is equal to other phenolic in inhibiting the growth of bacteria of *Streptococcus mutans* and *Eschericia coli* and can reacted by incarnation an enzyme essential and destructor or incarnation a function of material used to call as genetic (Branen , 1993) .

CONCLUSION

But in this study inconclusive as follows:

1. Plant pandanus new

woodland species by its latin name (*Freycinetia sessiliflora* Rizki .) can be inhibiting the growth of bacteria *Streptococcus mutans*.

2. An obstruent power has risen and other that is produced on a the bacteria *Streptococcus mutans* by concentration of the 5 % as much as 10,86 mm , the concentration of 10% as much as 11,46 mm , the concentration of 15 % as much as 11,8 mm , the concentration of 20 % as much as 12,24 a mm and the concentration of with the highest overall performance 25 % as much as 12,9 mm.

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