

Mochtar Riady Institute for Nanotechnology (MRIN)
“Future of Healthcare Technology”
FK UPH, 28-29 September 2017



The Effectiveness of *Jatropha multifida* L. Sap as Antiseptic Against *Staphylococcus aureus*, *Escherichia coli* and *Candida* sp. Growth In Vitro

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Background:

The skin are protected human body from harmful microorganism that make an important role to our immun system. If something happened like wound at our skin, than body exposed with pathogen microorganism that can be infected inner cell of the body. Therefore to prevent further infection antiseptic solution that can be functional as bactericidal for open wound *Jatropha multifida* L. sap is a plant that has bioactive agent alkaloid, flavonoid, tanin and saponin recognized for its medical properties as antiseptic.

Objective:

To prove the effectiveness bioactive agent of *Jatropha multifida* L. sap as antiseptic against *Staphylococcus aureus*, *Escherichia coli* and *Candida albicans* growth In Vitro

Methods:

This study used true experimental method, the aim of study is to know the effectiveness bioactive agent of *Jatropha multifida* L. sap againsts bacterial population such as *Staphylococcus aureus* (Gram +), and *Escherichia coli* (Gram -) and also fungi *Candida albicans*. The repetition of each treatment group was counted by Federer formula. The method of study using agar diffusion (Kirby-Bauer) trough media Mueller Hinton Agar (MHA) for bacteria and media Saboround Dextrose Agar (SDA) for fungi in order to measure the growth inhibition zone around the cylinder plate.

Result:

Table 1. Mean values an *Jatropha multifida* L. against *Staphylococcus aureus*

Inhibition Zone Diameter Against <i>Staphylococcus aureus</i> (mm)							
Trial	Control (-)	Control (+)	20%	40%	60%	80%	100%
1	0	14,76	11,75	12,21	12,91	13,36	13,66
2	0	15,04	10,96	12,37	13,17	13,08	13,89
3	0	14,17	10,16	12,37	13,33	13,36	14,39
4	0	14,29	10,16	12,65	13,33	13,89	14,38
5	0	14,55	10,46	11,63	13,57	13,89	13,97
Total	0	72,81	53,49	61,23	66,31	67,58	70,29
Mean	0	14,56	10,69	12,24	13,26	13,51	14,05

Table 2. Mean values an inhibition zone diameter of *Jatropha multifida* L. against *Escherichia coli*

Inhibition Zone Diameter Against <i>Escherichia coli</i> (mm)							
Trial	Control (-)	Control (+)	20%	40%	60%	80%	100%
1	0	14,68	10,28	11,34	11,90	13,92	22,29
2	0	14,66	9,96	11,62	12,15	13,51	22,25
3	0	13,19	10,33	11,62	12,58	13,01	22,25
4	0	14,55	10,33	11,47	12,58	13,15	19,98
5	0	14,55	10,62	11,91	12,25	13,06	19,55
Total	0	72,63	51,52	57,96	61,46	66,65	106,32
Mean	0	14,52	10,30	11,59	12,29	13,33	21,26

Table 3. Mean values an inhibition zone diameter of *Jatropha multifida* L. against *Candida* sp.

Inhibition Zone Diameter Against <i>Candida albicans</i> (mm)							
Trial	Control (-)	Control (+)	20%	40%	60%	80%	100%
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Mean	0	0	0	0	0	0	0

Summary of all the table: *S. aureus* has strong antiseptic power, *E. coli* has strong-very strong antiseptic power, *C. albicans* has weak antiseptic power (Davis & Stout Criteria)

The result analyzed using Non Parametric test Kruskal-Wallis and post hoc Mann Withney. Statistically *Jatropha multifida* L. sap has significant antiseptic power with p value= 0,000 (p<0,05) for all concentration, which is 20%,40%,60%,80% dan 100% v/v especially *Escherichia coli* and *Staphylococcus aureus*, but not effective for *Candida albicans*.

Discussion: To know the effectiveness of *Jatropha multifida* L. further need the experimental in vivo

Conclusion: The present study shows that *Jatropha multifida* L. sap has potential antiseptic effect as good as betadine in vitro, so in the future can be used as herbs antiseptic.

Keywords: Antiseptic, *Candida albicans*, *Escherichia coli*, *Jatropha multifida* L., *Staphylococcus aureus*

Acknowledgment: The author wish to say thanks to Menristek DIKTI was founded the present study and LPPM FKUPNVJ

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