

LAMPIRAN

Lampiran 1 Perhitungan

1. Tinggi busa

Rumus :

$$\text{Tinggi busa} = \frac{\text{tinggi busa awal} - \text{tinggi busa akhir}}{\text{tinggi busa awal}} \times 100\%$$

$$\text{F0 Replikasi 1} = \frac{8,5 \text{ cm} - 4 \text{ cm}}{8,5 \text{ cm}} \times 100 \%$$

$$= 52,9\%$$

$$\text{Replikasi 2} = \frac{6,5 \text{ cm} - 4,7 \text{ cm}}{6,5 \text{ cm}} \times 100 \%$$

$$= 27,6\%$$

$$\text{Replikasi 3} = \frac{7 \text{ cm} - 4 \text{ cm}}{7 \text{ cm}} \times 100 \%$$

$$= 42,8\%$$

$$\text{Rata-rata} = \frac{52,9\% + 27,6\% + 42,8\%}{3}$$

$$= 41,1\%$$

$$\text{F1 Replikasi 1} = \frac{6,8 \text{ cm} - 4 \text{ cm}}{6,8 \text{ cm}} \times 100 \%$$

$$= 41,1\%$$

$$\text{Replikasi 2} = \frac{8 \text{ cm} - 6 \text{ cm}}{8 \text{ cm}} \times 100 \%$$

$$= 25\%$$

$$\text{Replikasi 3} = \frac{8 \text{ cm} - 6,1 \text{ cm}}{8 \text{ cm}} \times 100 \%$$

$$= 23,7\%$$

$$\text{Rata-rata} = \frac{41,1\% + 25\% + 23,7\%}{3}$$

$$= 29,9\%$$

$$\text{F2 Replikasi 1} = \frac{9 \text{ cm} - 5 \text{ cm}}{9 \text{ cm}} \times 100 \%$$

$$= 44,4\%$$

$$\text{Replikasi 2} = \frac{8 \text{ cm} - 5,5 \text{ cm}}{5,5 \text{ cm}} \times 100 \%$$

$$= 31,2\%$$

$$\text{Replikasi 3} = \frac{8 \text{ cm} - 5 \text{ cm}}{8 \text{ cm}} \times 100 \%$$

$$\begin{aligned}
 &= 37,5\% \\
 \text{Rata-rata} &= \frac{44,4\% + 31,2\% + 37,5\%}{3} \\
 &= 37,7\% \\
 \text{F3 Replikasi 1} &= \frac{8,5 \text{ cm} - 6 \text{ cm}}{8,5 \text{ cm}} \times 100 \% \\
 &= 29,4\% \\
 \text{Replikasi 2} &= \frac{8 \text{ cm} - 6 \text{ cm}}{8 \text{ cm}} \times 100 \% \\
 &= 25\% \\
 \text{Replikasi 3} &= \frac{8,5 \text{ cm} - 5 \text{ cm}}{8,5 \text{ cm}} \times 100 \% \\
 &= 41,1\% \\
 \text{Rata-rata} &= \frac{29,4\% + 25\% + 41,1\%}{3} \\
 &= 31,8\%
 \end{aligned}$$

2. pH

$$\begin{aligned}
 \text{F0 Replikasi 1} &= 9,95 \\
 \text{Replikasi 2} &= 9,73 \\
 \text{Replikasi 3} &= 10,02 \\
 \text{Rata-rata} &= \frac{9,95 + 9,73 + 10,02}{3} = 9,9 \\
 \text{F1 Replikasi 1} &= 9,34 \\
 \text{Replikasi 2} &= 8,34 \\
 \text{Replikasi 3} &= 9,14 \\
 \text{Rata-rata} &= \frac{9,34 + 8,34 + 9,14}{3} = 8,94 \\
 \text{F2 Replikasi 1} &= 8,96 \\
 \text{Replikasi 2} &= 8,17 \\
 \text{Replikasi 3} &= 8,26 \\
 \text{Rata-rata} &= \frac{8,96 + 8,17 + 8,26}{3} = 8,4 \\
 \text{F3 Replikasi 1} &= 9,35 \\
 \text{Replikasi 2} &= 9,49 \\
 \text{Replikasi 3} &= 9,32 \\
 \text{Rata-rata} &= \frac{9,35 + 9,49 + 9,32}{3} = 9,3
 \end{aligned}$$

3. Bahan tidak larut dalam etanol

Rumus :

$$\text{Bahan tidak larut dalam etanol} : \frac{b_2 - b_0}{b_1} \times 100\%$$

$$\begin{aligned}\text{F0 Replikasi 1} &= \frac{0,6472 \text{ gram} - 0,5849 \text{ gram}}{1,5 \text{ gram}} \times 100 \% \\ &= 4,15\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 2} &= \frac{0,6548 \text{ gram} - 0,5786 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\ &= 5,08\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 3} &= \frac{0,6535 \text{ gram} - 0,5793 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\ &= 4,94\%\end{aligned}$$

$$\begin{aligned}\text{Rata-rata} &= \frac{4,15\% + 5,08\% + 4,94\%}{3} \\ &= 4,72\%\end{aligned}$$

$$\begin{aligned}\text{F1 Replikasi 1} &= \frac{0,6468 \text{ gram} - 0,5820 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\ &= 4,32\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 2} &= \frac{0,6299 \text{ gram} - 0,5782 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\ &= 3,44\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 3} &= \frac{0,6386 \text{ gram} - 0,5807 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\ &= 3,86\%\end{aligned}$$

$$\begin{aligned}\text{Rata-rata} &= \frac{4,32\% + 3,44\% + 3,86\%}{3} \\ &= 3,87\%\end{aligned}$$

$$\begin{aligned}\text{F2 Replikasi 1} &= \frac{0,6552 \text{ gram} - 0,5838 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\ &= 4,76\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 2} &= \frac{0,6696 \text{ gram} - 0,5963 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\ &= 4,88\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 3} &= \frac{0,6066 \text{ gram} - 0,5821 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\ &= 1,63\%\end{aligned}$$

$$\begin{aligned}\text{Rata-rata} &= \frac{4,76\% + 4,88\% + 1,63\%}{3}\end{aligned}$$

$$\begin{aligned}
&= 3,75\% \\
\text{F3 Replikasi 1} &= \frac{0,6340 \text{ gram} - 0,5841 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\
&= 3,32\% \\
\text{Replikasi 2} &= \frac{0,6402 \text{ gram} - 0,5813 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\
&= 3,92\% \\
\text{Replikasi 3} &= \frac{0,6464 \text{ gram} - 0,5851 \text{ gram}}{1,5 \text{ gram}} \times 100\% \\
&= 4,08\% \\
\text{Rata-rata} &= \frac{3,32\% + 3,92\% + 4,08\%}{3} \\
&= 3,77\%
\end{aligned}$$

4. Kadar air

Rumus :

$$\text{Kadar air} : \frac{b1 - b2}{b1 - b0} \times 100\%$$

$$\begin{aligned}
\text{F0 Replikasi 1} &= \frac{29,0985 \text{ gram} - 28,3815 \text{ gram}}{29,0985 \text{ gram} - 24,1006 \text{ gram}} \times 100\% \\
&= 14,34\% \\
\text{Replikasi 2} &= \frac{57,0112 \text{ gram} - 56,1775 \text{ gram}}{57,0112 \text{ gram} - 51,999 \text{ gram}} \times 100\% \\
&= 16,63\% \\
\text{Rata-rata} &= \frac{14,34\% + 16,63\%}{2} \\
&= 15,48\% \\
\text{F1 Replikasi 1} &= \frac{20,5768 \text{ gram} - 19,8620 \text{ gram}}{20,5768 \text{ gram} - 15,5655 \text{ gram}} \times 100\% \\
&= 14,26\% \\
\text{Replikasi 2} &= \frac{71,3996 \text{ gram} - 70,5215 \text{ gram}}{71,3996 \text{ gram} - 66,4009 \text{ gram}} \times 100\% \\
&= 17,56\% \\
\text{Rata-rata} &= \frac{14,26\% + 17,56\%}{2} \\
&= 15,91\% \\
\text{F2 Replikasi 1} &= \frac{64,5849 \text{ gram} - 63,6288 \text{ gram}}{64,5849 \text{ gram} - 59,5834 \text{ gram}} \times 100\% \\
&= 19,11\%
\end{aligned}$$

$$\begin{aligned}\text{Replikasi 2} &= \frac{60,6541 \text{ gram} - 59,8269 \text{ gram}}{60,6541 \text{ gram} - 55,6466 \text{ gram}} \times 100\% \\ &= 16,51\%\end{aligned}$$

$$\begin{aligned}\text{Rata-rata} &= \frac{19,11\% + 16,51\%}{2} \\ &= 17,81\%\end{aligned}$$

$$\begin{aligned}\text{F3 Replikasi 1} &= \frac{61,5612 \text{ gram} - 60,7595 \text{ gram}}{61,5612 \text{ gram} - 56,5609 \text{ gram}} \times 100\% \\ &= 16,03\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 2} &= \frac{65,6041 \text{ gram} - 64,7988 \text{ gram}}{65,6041 \text{ gram} - 60,5028 \text{ gram}} \times 100\% \\ &= 15,78\%\end{aligned}$$

$$\begin{aligned}\text{Rata-rata} &= \frac{16,03\% + 15,78\%}{2} \\ &= 15,90\%\end{aligned}$$

5. Asam lemak bebas

Rumus :

$$\text{Asam lemak bebas} = \frac{282 \times V \times N}{b} \times 100\%$$

$$\begin{aligned}\text{F0 Replikasi 1} &= \frac{282 \times 8 \times 0,1}{1500} \times 100\% \\ &= 15,04\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 2} &= \frac{282 \times 8,2 \times 0,1}{1500} \times 100\% \\ &= 15,41\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 3} &= \frac{282 \times 8,4 \times 0,1}{1500} \times 100\% \\ &= 15,79\%\end{aligned}$$

$$\begin{aligned}\text{Rata-rata} &= \frac{15,04\% + 15,41\% + 15,79\%}{3} \\ &= 15,41\%\end{aligned}$$

$$\begin{aligned}\text{F1 Replikasi 1} &= \frac{282 \times 6,5 \times 0,1}{1500} \times 100\% \\ &= 12,22\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 2} &= \frac{282 \times 8,1 \times 0,1}{1500} \times 100\% \\ &= 15,22\%\end{aligned}$$

$$\begin{aligned}\text{Replikasi 3} &= \frac{282 \times 6 \times 0,1}{1500} \times 100\% \\ &= 11,28\%\end{aligned}$$

$$\begin{aligned}
 &= 11,28\% \\
 \text{Rata-rata} &= \frac{12,22\% + 15,22\% + 11,28\%}{3} \\
 &= 12,90\% \\
 \text{F2 Replikasi 1} &= \frac{282 \times 8,5 \times 0,1}{1500} \times 100\% \\
 &= 15,98\% \\
 \text{Replikasi 2} &= \frac{282 \times 8,5 \times 0,1}{1500} \times 100\% \\
 &= 16,73\% \\
 \text{Replikasi 3} &= \frac{282 \times 11,7 \times 0,1}{1500} \times 100\% \\
 &= 21,99\% \\
 \text{Rata-rata} &= \frac{15,98\% + 16,73\% + 21,99\%}{3} \\
 &= 18,23\% \\
 \text{F3 Replikasi 1} &= \frac{282 \times 15,5 \times 0,1}{1500} \times 100\% \\
 &= 29,14\% \\
 \text{Replikasi 2} &= \frac{282 \times 14,1 \times 0,1}{1500} \times 100\% \\
 &= 26,50\% \\
 \text{Replikasi 3} &= \frac{282 \times 14,3 \times 0,1}{1500} \times 100\% \\
 &= 26,88\% \\
 \text{Rata-rata} &= \frac{29,14\% + 26,50\% + 26,88\%}{3} \\
 &= 27,50\%
 \end{aligned}$$

Lampiran 2 Dokumentasi penelitian

1. Pengujian organoleptik

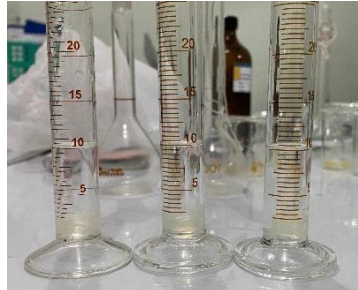


Organoleptik sabun

2. Pengujian tinggi busa



Penimbangan sampel



Penambahan aquades 10 ml dan sampel



Pengukuran tinggi busa

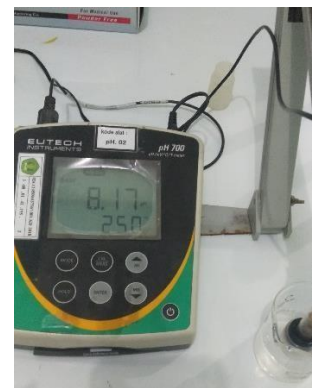
3. Pengukuran pH



Penimbangan sampel



Kalibrasi pH meter



Pengujian pH meter pada sampel

4. Pengujian bahan tidak larut dalam etanol



Preparasi sampel



Persiapan pengovenan kertas saring



Pengovenan kertas saring



Penetapan bobot tetap
kertas saring



Penyaringan sampel



Pengovenan residu sampel

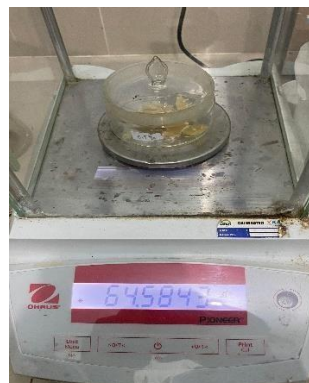


Penimbangan bobot tetap

5. Pengujian kadar air



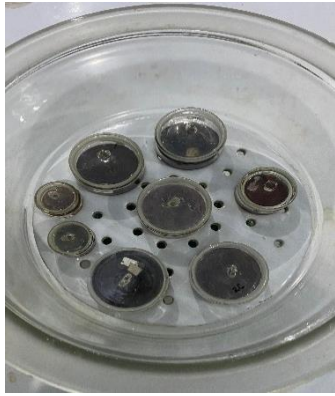
Penimbangan kaca
timbang setelah di oven



Penimbangan sampel



Pemanasan sampel



Proses pendinginan dalam desikator



Penimbangan sampai bobot tetap

6. Pengujian asam lemak bebas



Proses pemanasan filtrat



Setelah penambahan indikator pp 1%



Proses titrasi

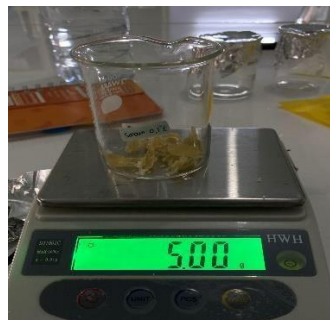


Perubahan warna setelah titrasi (TAT)

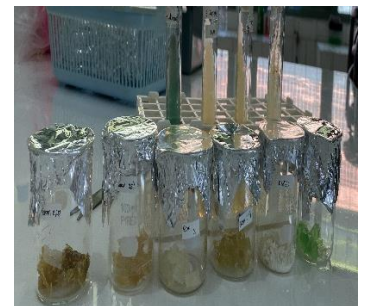
7. Pengujian mikrobiologi



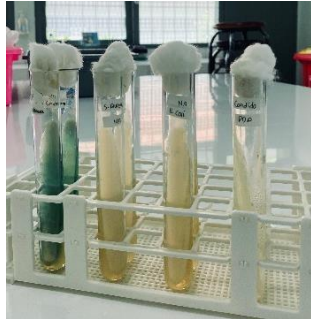
Sterilisasi alat



Penimbangan sampel



persiapan sampel uji



Persiapan bakteri uji



pembuatan suspensi Mr Farland



Pembuatan media



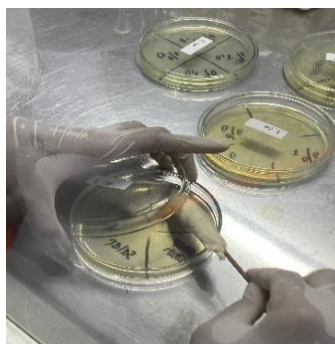
Pembuatan media



Sterilisasi media



Proses pematatan media



Inokulasi bakteri ke media



Pembuatan lubang (sumur) pada media



Pemipetan sampel ke dalam lubang sumuran



Proses inkubasi



Pengukuran zona hambat

Lampiran 3 Hasil zona hambat bakteri pada sabun

1. Bakteri *pseudomonas auregionosa*



Formulasi sabun mandi padat
spirulina sp dan madu



Kontrol positif

2. Bakteri *Staphylococcus aureus*



Formulasi sabun mandi padat
spirulina sp dan madu



Kontrol positif

Lampiran 4 Output Hasil Analisis Data One Way ANOVA

1. Bakteri *pseudomonas auregionosa*

a. Hasil uji deskriptif

Descriptives								
DayaHambat								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0%	2	1.7500	.35355	.25000	-1.4266	4.9266	1.50	2.00
0,10%	2	2.1000	.84853	.60000	-5.5237	9.7237	1.50	2.70
0,25%	2	2.4500	.77782	.55000	-4.5384	9.4384	1.90	3.00
0,50%	2	2.0000	.56569	.40000	-3.0825	7.0825	1.60	2.40
Asepso	2	.0000	.00000	.00000	.0000	.0000	.00	.00
Holly	2	2.7500	1.06066	.75000	-6.7797	12.2797	2.00	3.50
Amoxsilin	2	.0000	.00000	.00000	.0000	.0000	.00	.00
Salep	2	1.1000	.14142	.10000	-.1706	2.3706	1.00	1.20
Total	16	1.5188	1.11069	.27767	.9269	2.1106	.00	3.50

b. Hasil uji homogenitas

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
DayaHambat	Based on Mean	1074967708993538400 00000000000000.000	7	8	.000
	Based on Median	1074967708993538400 00000000000000.000	7	8	.000
	Based on Median and with adjusted df	1074967708993538400 00000000000000.000	7	1.471	.000
	Based on trimmed mean	1310936230479925000 00000000000000.000	7	8	.000

c. Hasil uji One Way ANOVA

ANOVA

DayaHambat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.589	7	2.227	6.112	.010
Within Groups	2.915	8	.364		
Total	18.504	15			

Hasil analisis statistika one way anova diperoleh P value 0,010 ($P < 0,05$) yang berarti pada tiap kelompok konsentrasi memiliki perbedaan yang signifikan.

d. Hasil uji Post Hoc Tests

Multiple Comparisons

Dependent Variable: DayaHambat

Tukey HSD

(I) Konsentrasi	(J) Konsentrasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0%	0,10%	-.35000	.60363	.998	-2.7386	2.0386
	0,25%	-.70000	.60363	.924	-3.0886	1.6886
	0,50%	-.25000	.60363	1.000	-2.6386	2.1386
	Asepto	1.75000	.60363	.192	-.6386	4.1386
	Holly	-1.00000	.60363	.712	-3.3886	1.3886
	Amoxsilin	1.75000	.60363	.192	-.6386	4.1386
	Salep	.65000	.60363	.945	-1.7386	3.0386

Pada hasil uji Post Hoc Test HSD perbandingan rata-rata zona hambat pada formulasi 0% dan 0,10%; 0,25%; 0,50% asepto, holly amoxsilin dan salep. Memiliki angka perbedaan rata-rata zona hambat berturut-turut yaitu 0,35000; 0.70000; 0.25000; 1.75000; -1.00000; 1.75000; dan 0.65000. Angka tersebut di peroleh dari nilai rata-rata (pada output deskriptif). Dari output di atas diketahui nilai Sig sebesar 0,998; 0.924; 1.000; 0.192; 0.712; 0.192; dan 0.945 $> 0,05$ sehingga semua formulasi tidak ada perbedaan yang signifikan.

e. Hasil uji tukey HSD

Tukey HSD ^a			
Daya Hambat			
Konsentrasi	N	Subset for alpha = 0.05	
		1	2
Asepso	2	.0000	
Amoxsilin	2	.0000	
Salep	2	1.1000	1.1000
0%	2	1.7500	1.7500
0,50%	2	2.0000	2.0000
0,10%	2	2.1000	2.1000
0,25%	2		2.4500
Holly	2		2.7500
Sig.		.092	.236

Pada subset 1 rata-rata daya hambat tersebut tidak mempunyai perbedaan yang signifikan atau sama, sedangkan pada subset 2 rata-rata daya hambat tidak mempunyai perbedaan yang signifikan atau sama. Sedangkan pada asepso dan amoxsilin memiliki perbedaan dengan formulasi 0,25% dan holly. Dan pada salep, 0%, 0,50%, dan 0,10% daya hambatnya sama.

2. Bakteri *Staphylococcus aureus*

a. Hasil uji deskripsi

Descriptives

DayaHambat

				95% Confidence Interval for Mean		Minimum	Maximum
N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound		
0%	2	1.5000	.00000	.00000	1.5000	1.50	1.50
0,10%	2	2.2500	.07071	.05000	1.6147	2.20	2.30
0,25%	2	2.2500	.07071	.05000	1.6147	2.20	2.30
0,50%	2	2.0500	.35355	.25000	-1.1266	1.80	2.30
Asepso	2	.0000	.00000	.00000	.0000	.00	.00
Holly	2	1.8500	.21213	.15000	-.0559	1.70	2.00

Amoxsi 2 lin	2	2.7000	.42426	.30000	-1.1119	6.5119	2.40	3.00
Salep	2	1.3500	.21213	.15000	-.5559	3.2559	1.20	1.50
Total	16	1.7438	.81565	.20391	1.3091	2.1784	.00	3.00

b. Hasil uji homogenitas

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
DayaHambat Based on Mean		11879697053567410000 00000000000.000	7	8	.000
	Based on Median	11879697053567410000 00000000000.000	7	8	.000
	Based on Median and with adjusted df	11879697053567410000 00000000000.000	7	2.5 79	.000
	Based on trimmed mean	11879697053567410000 00000000000.000	7	8	.000

c. Hasil uji One Way ANOVA

ANOVA

DayaHambat

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	9.574	7	1.368	27.018	.000
Within Groups	.405	8	.051		
Total	9.979	15			

Hasil analisis statistika one way anova diperoleh p value 0,000 ($P < 0,05$) yang berarti pada tiap kelompok konsentrasi memiliki perbedaan yang signifikan.

d. Hasil uji Post Hoc Tests

Multiple Comparisons

Dependent Variable: DayaHambat

Tukey HSD

(I) Konsentras i	(J) Konsentrasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound

0%	0,10%	-.75000	.22500	.111	-1.6403	.1403
	0,25%	-.75000	.22500	.111	-1.6403	.1403
	0,50%	-.55000	.22500	.332	-1.4403	.3403
	Asepso	1.50000*	.22500	.002	.6097	2.3903
	Holly	-.35000	.22500	.763	-1.2403	.5403
	Amoxsilin	-1.20000*	.22500	.009	-2.0903	-.3097
	Salep	.15000	.22500	.996	-.7403	1.0403

Pada tabel di atas hasil uji Post Hoc Test HSD pada bakteri *Staphylococcus aureus* perbandingan rata-rata zona hambat pada formulasi 0% dan 0,10%; 0,25%; 0,50% dan holly Memiliki angka perbedaan rata-rata zona hambat berturut-turut yaitu 0,75000; 0.75000; 0.5500 dan 0,763. Angka tersebut di peroleh dari nilai rata-rata (pada output deskriptif). Dari output di atas diketahui nilai Sig sebesar 0,111; 0,111; dan 0,332 > 0,05 sehingga semua formulasi tidak ada perbedaan yang signifikan atau sama. Sedangkan pada perbandingan formulasi 0% dengan asepto dan amoxsilin memiliki perbedaan karena nilai p value <0,05.

e. Hasil uji tukey HSD

DayaHambat

Tukey HSD^a

Konsentrasi	N	Subset for alpha = 0.05			
		1	2	3	4
Asepso	2	.0000			
Salep	2		1.3500		
0%	2		1.5000	1.5000	
Holly	2		1.8500	1.8500	1.8500
0,50%	2		2.0500	2.0500	2.0500
0,10%	2			2.2500	2.2500
0,25%	2			2.2500	2.2500
Amoxsilin	2				2.7000
Sig.		1.000	.147	.111	.063

Pada subset 1 memiliki perbedaan dari semua kelompok, sedangkan pada salep dan formulasi 0% memiliki perbedaan pada 0,10%, 0,25% dan amoxsilin. Dan pada sabun holly dan 0,50% memiliki daya hambat yang sama.