

BAB V

KESIMPULAN DAN SARAN

5.1. Kesimpulan

1. Karakteristik bakteri yang teridentifikasi pada fermentasi kombucha daun dewa melalui pengamatan mikroskopis meliputi bakteri berbentuk kokus dan didominasi bentuk basil dengan ukuran bakteri berada di rentang 0,5 – 1 mikrometer dengan berbagai susunan formasi berantai.
2. Aktivitas anti bakteri yang paling efektif terhadap bakteri dermatitis *S. aureus* dan *S. epidermidis* yaitu pada kombucha daun dewa konsentrasi 20% yang difermentasi selama 28 hari, dan terhadap bakteri dermatitis *C. acnes* yaitu pada kombucha daun dewa konsentrasi 15% yang difermentasi selama 28 hari.

5.2. Saran

1. Perlu dilakukan identifikasi molekuler untuk mengetahui dari spesies apa bakteri yang teridentifikasi pada kombucha daun dewa.
2. Uji LC-MS atau *Liquid Chromatography Mass Spectrometry* perlu dilakukan untuk mengkonfirmasi senyawa dan kandungan yang terdapat pada daun dewa.

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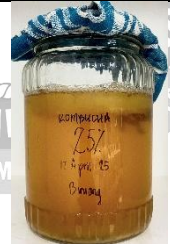
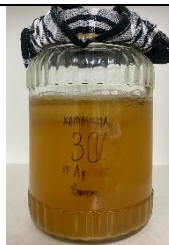
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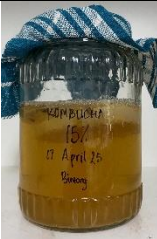
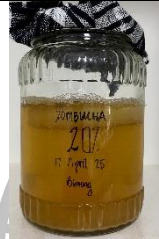
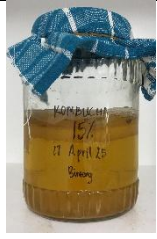
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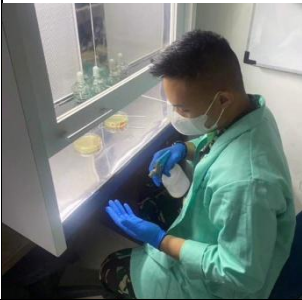
Lampiran 1: Hasil Pengamatan Kualitas dan Kuantitas Fermentasi Kombucha Daun Dewa

No	Hari ke	Gambar					Warna	Gelembung	Bau
		Gula 10%	Gula 15%	Gula 20%	Gula 25%	Gula 30%			
1	0						Coklat Muda	-	Tidak kuat
2	7						Kuning Tua-jernih	+++	Bau asam kuat
3	14						Kuning Tua-keruh	+++	Bau asam kuat

No	Hari ke	Gambar					Warna	Gelembung	Bau
		Gula 10%	Gula 15%	Gula 20%	Gula 25%	Gula 30%			
4	21						Kuning Tua-keruh	+++	Bau asam makin kuat
5	28						Kuning Tua-keruh	++	Bau asam makin kuat

Lampiran 2: Dokumentasi Eksperimen Kombucha

No.	Gambar	Keterangan
1		Persiapan alat dan bahan pembuatan kombucha daun dewa.
2		Proses pembuatan kombucha daun dewa dengan 5 variasi konsentrasi gula berbeda.
3		Penyimpanan kombucha di dalam lemari tertutup.
4		Pembuatan media untuk penumbuhan dan uji <i>bioassay</i>.
5		Penuangan media NA pada cawan petri.

6		Persiapan penuangan dan injeksi <i>bioassay</i> .
7		Pengukuran ketebalan SCOBY.
8		Panen dan penyimpanan di eppendorf.
9		Overnight penumbuhan bakteri uji di media NB.
10		Pewarnaan dan pengamatan preparat bakteri kombucha.

11		Kalibrasi dan pengukuran pH.
12		Penimbangan antibiotik.
13		Penanaman dalam sumuran <i>bioassay</i> dan inkubasi penanaman bakteri.
14		Penyimpanan isolat ke kulkas -40.
15		Pengukuran nilai absorbansi.

Lampiran 3: Pengamatan pH pada 5 konsentrasi gula berbeda

No.	Konsentrasi Gula	Hari ke-0	Hari ke-7	Hari ke-14	Hari ke-21	Hari ke-28
1	10%	3,34	3,22	2,90	2,70	2,76
2	15%	3,34	3,27	2,86	2,63	2,80
3	20%	3,37	3,26	2,81	2,65	2,84
4	25%	3,36	3,29	2,80	2,66	2,81
5	30%	3,32	3,25	2,68	2,58	2,73

Lampiran 4: Nilai absorbansi menggunakan spektrofotometer dengan panjang gelombang 625 nm

No.	Konsentrasi Gula	Hari ke-0	Hari ke-7	Hari ke-14	Hari ke-21	Hari ke-28
1	10%	0,2485	0,0786	0,0661	0,0591	0,0540
2	15%	0,1548	0,1100	0,0716	0,0662	0,0475
3	20%	0,1518	0,1569	0,0781	0,0546	0,0480
4	25%	0,1451	0,1119	0,0910	0,0867	0,0487
5	30%	0,1478	0,1056	0,1298	0,0667	0,0577

Lampiran 5: Hasil uji ANOVA menggunakan bakteri *S. aureus*

Faktor	Df	Jumlah Kuadrat	Kuadrat Rata-rata	Nilai F	p-value
konsentrasi_gula	4	7.626513	1.9066283	5.49234	0.000417
lama_fermentasi	4	576.694233	144.1735583	415.314367	<2e-16 ***
lama_fermentasi* konsentrasi_gula	16	8.846953	0.5529346	1.592814	0.079973.
Residuals	125	43.3929	0.3471432	NA	NA

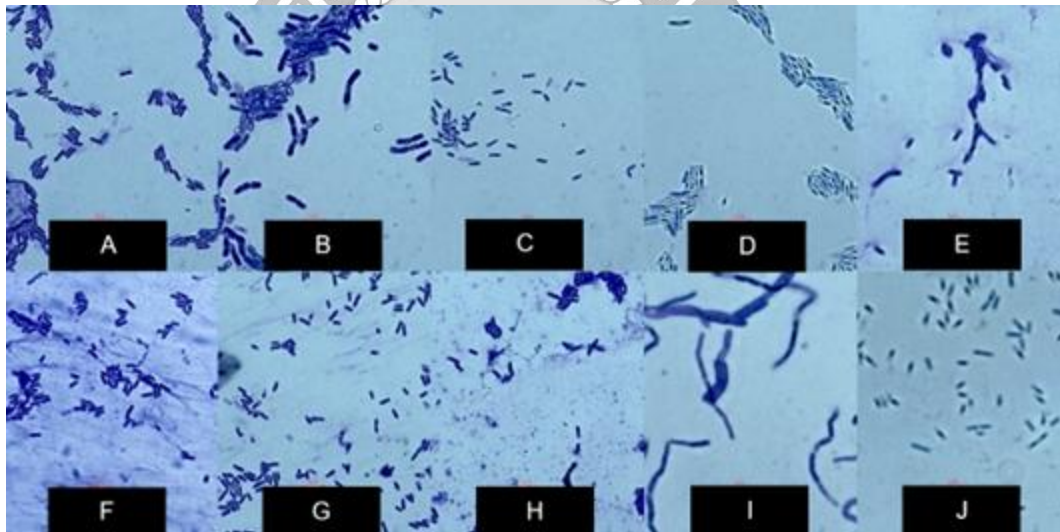
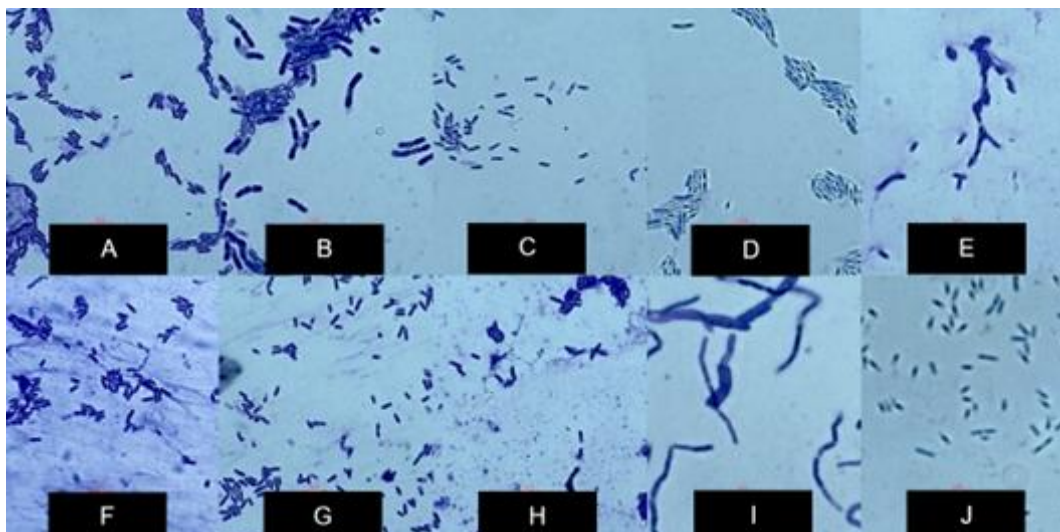
Lampiran 6: Hasil uji ANOVA menggunakan bakteri *S. epidermidis*

Faktor	Df	Jumlah Kuadrat	Kuadrat Rata-rata	Nilai F	p-value
konsentrasi_gula	4	7.626513	1.9066283	5.49234	0.000417
lama_fermentasi	4	576.694233	144.1735583	415.314367	<2e-16***
lama_fermentasi* konsentrasi_gula	16	8.846953	0.5529346	1.592814	0.079973.
Residuals	125	43.3929	0.3471432	NA	NA

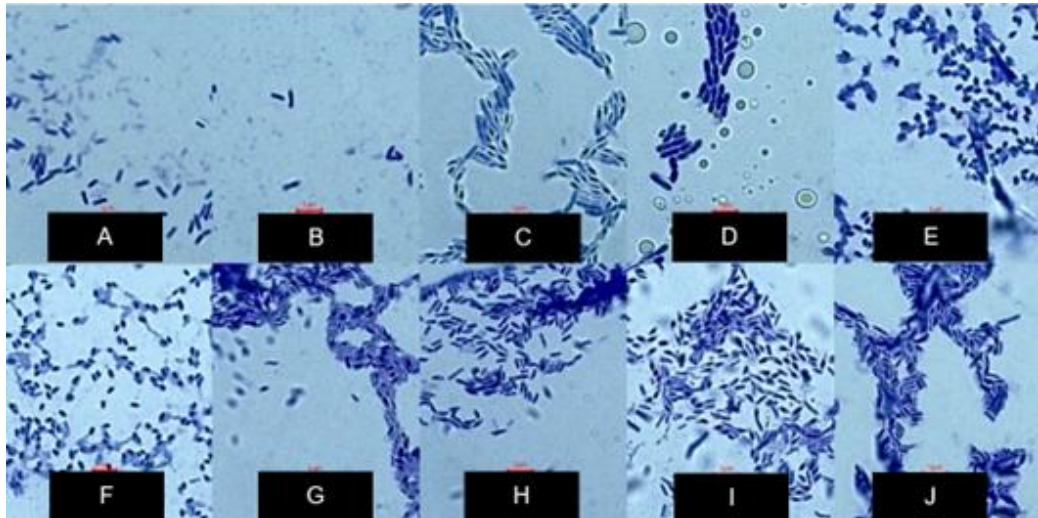
Lampiran 7: Hasil uji ANOVA menggunakan bakteri *C. acnes*

Faktor	Df	Jumlah Kuadrat	Kuadrat Rata-rata	Nilai F	p-value
konsentrasi_gula	4	7.626513	1.9066283	5.49234	0.000417
lama_fermentasi	4	576.694233	144.1735583	415.314367	<2e-16 ***
lama_fermentasi* konsentrasi_gula	16	8.846953	0.5529346	1.592814	0.079973 .
Residuals	125	43.3929	0.3471432	NA	NA

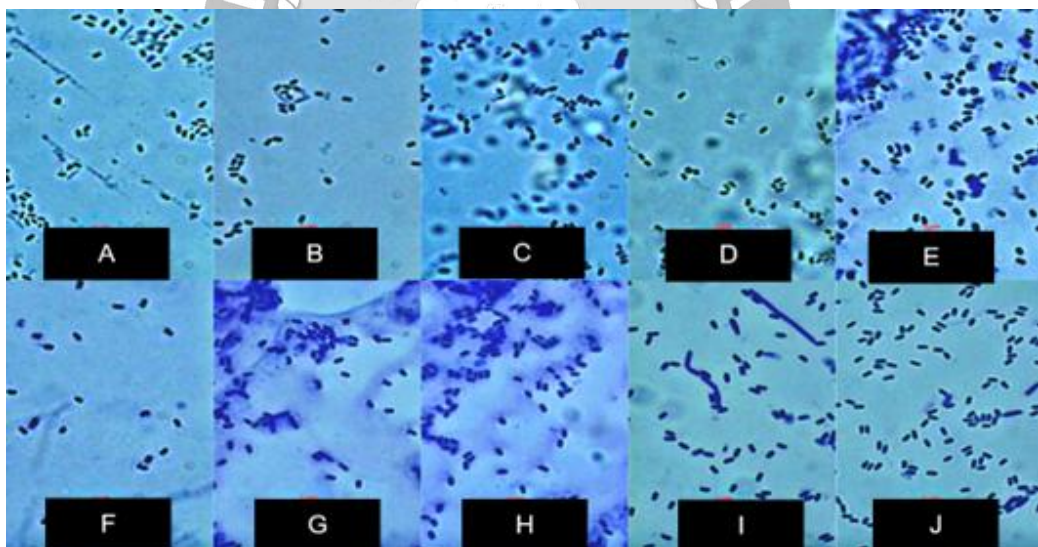
Keterangan: NA (Non applicable)

Lampiran 8: Pengamatan morfologi bakteri hari ke-0 perbesaran 100x**Lampiran 9:** Pengamatan morfologi bakteri hari ke-7 perbesaran 100x

Lampiran 10: Pengamatan morfologi bakteri hari ke-14 perbesaran 100x



Lampiran 11: Pengamatan morfologi bakteri hari ke-21 perbesaran 100x



Lampiran 12: Pengamatan morfologi bakteri hari ke-28 perbesaran 100x

