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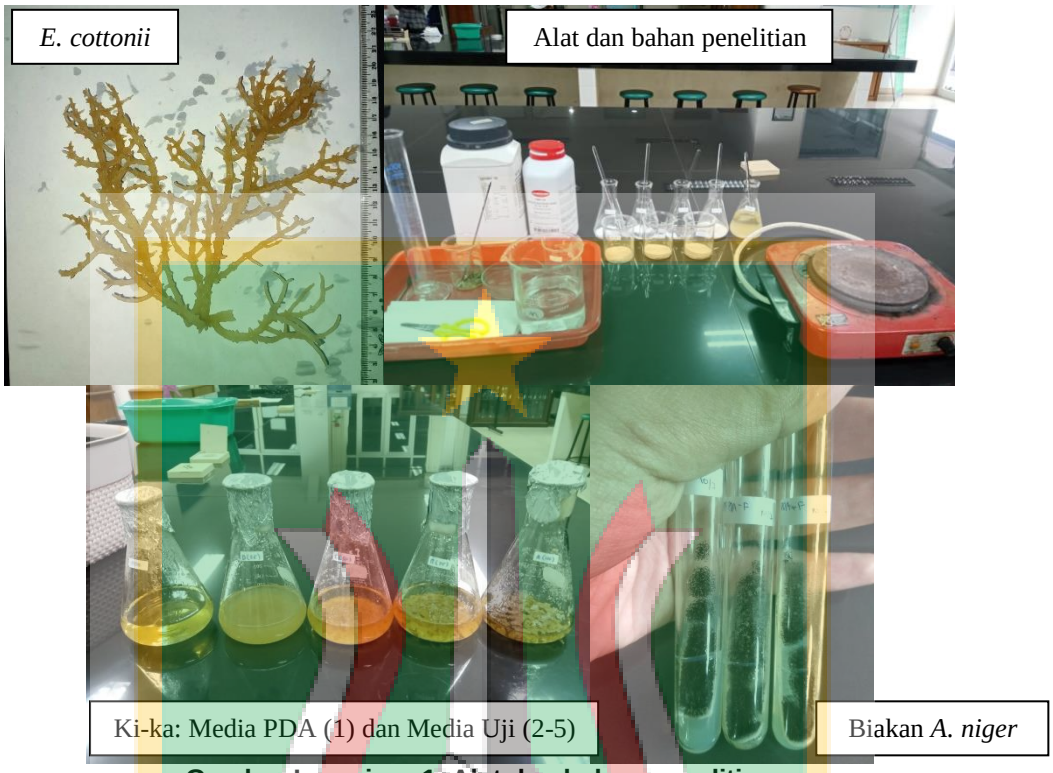
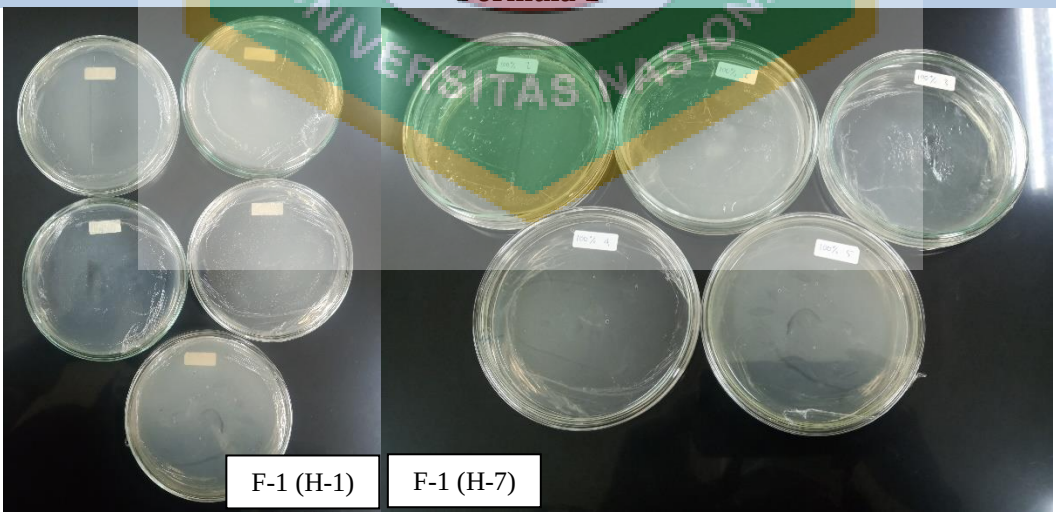
LAMPIRAN I GAMBAR LAMPIRAN



Gambar Lampiran 1. Alat dan bahan penelitian

Formula 1



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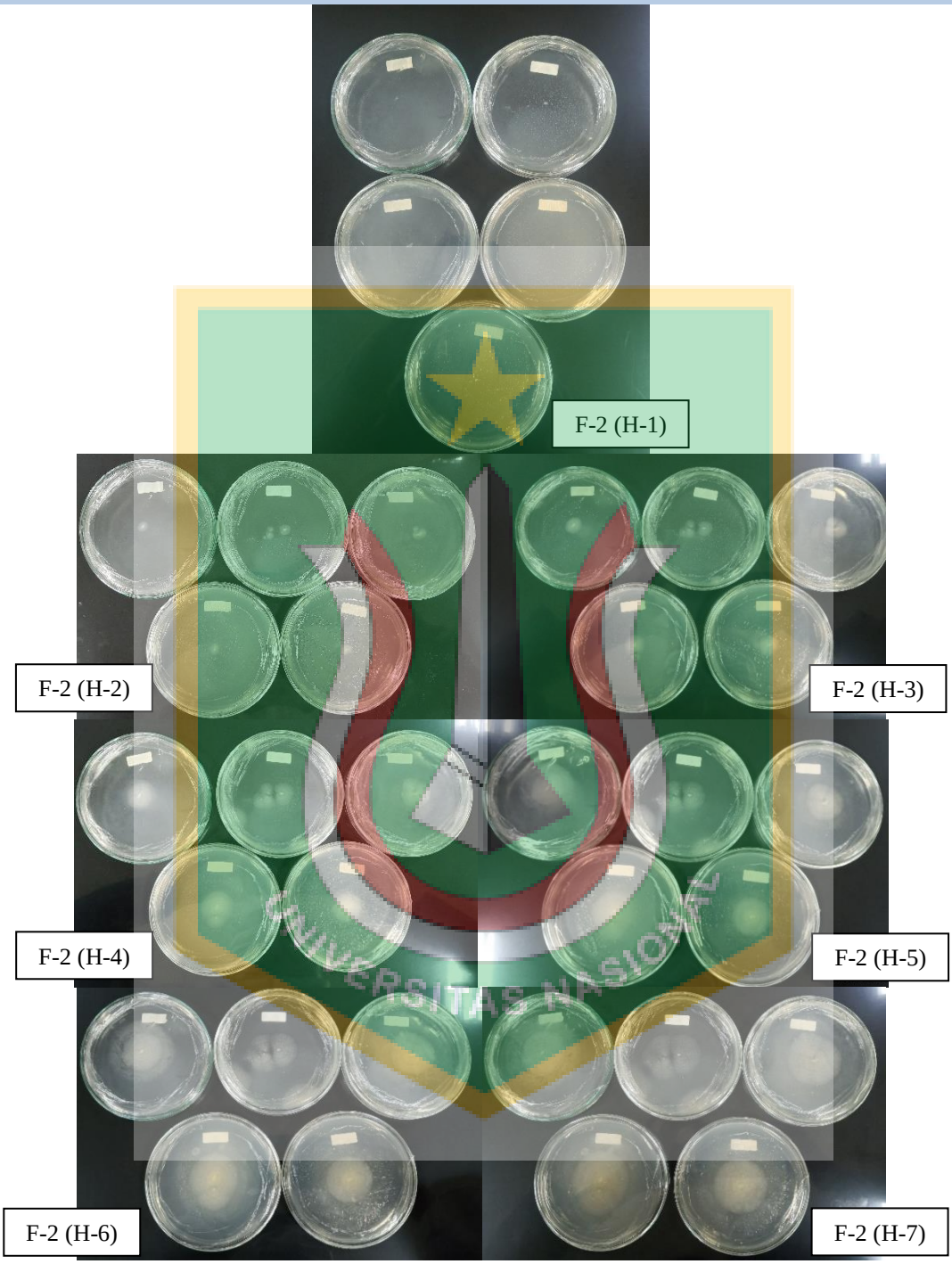

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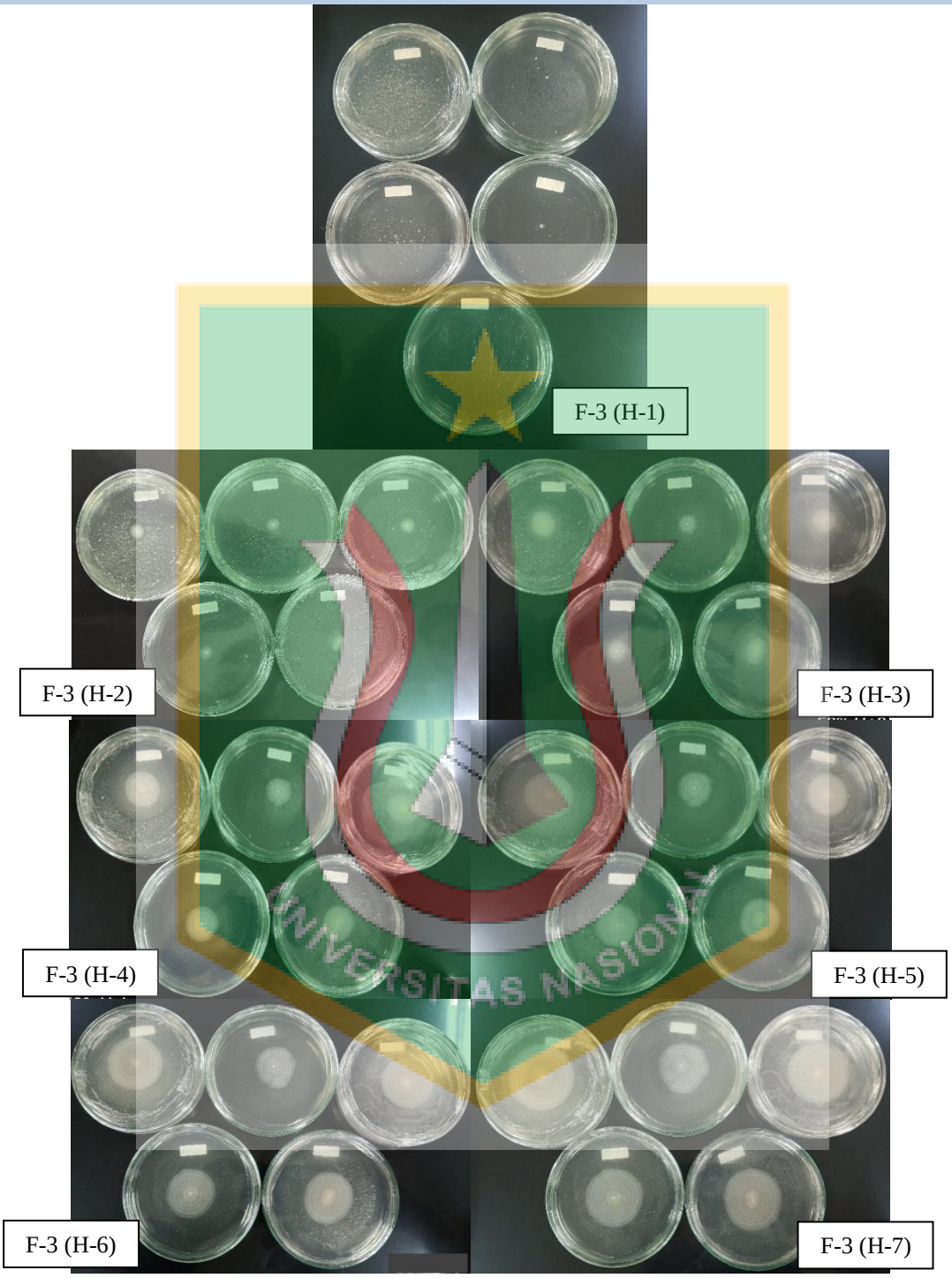

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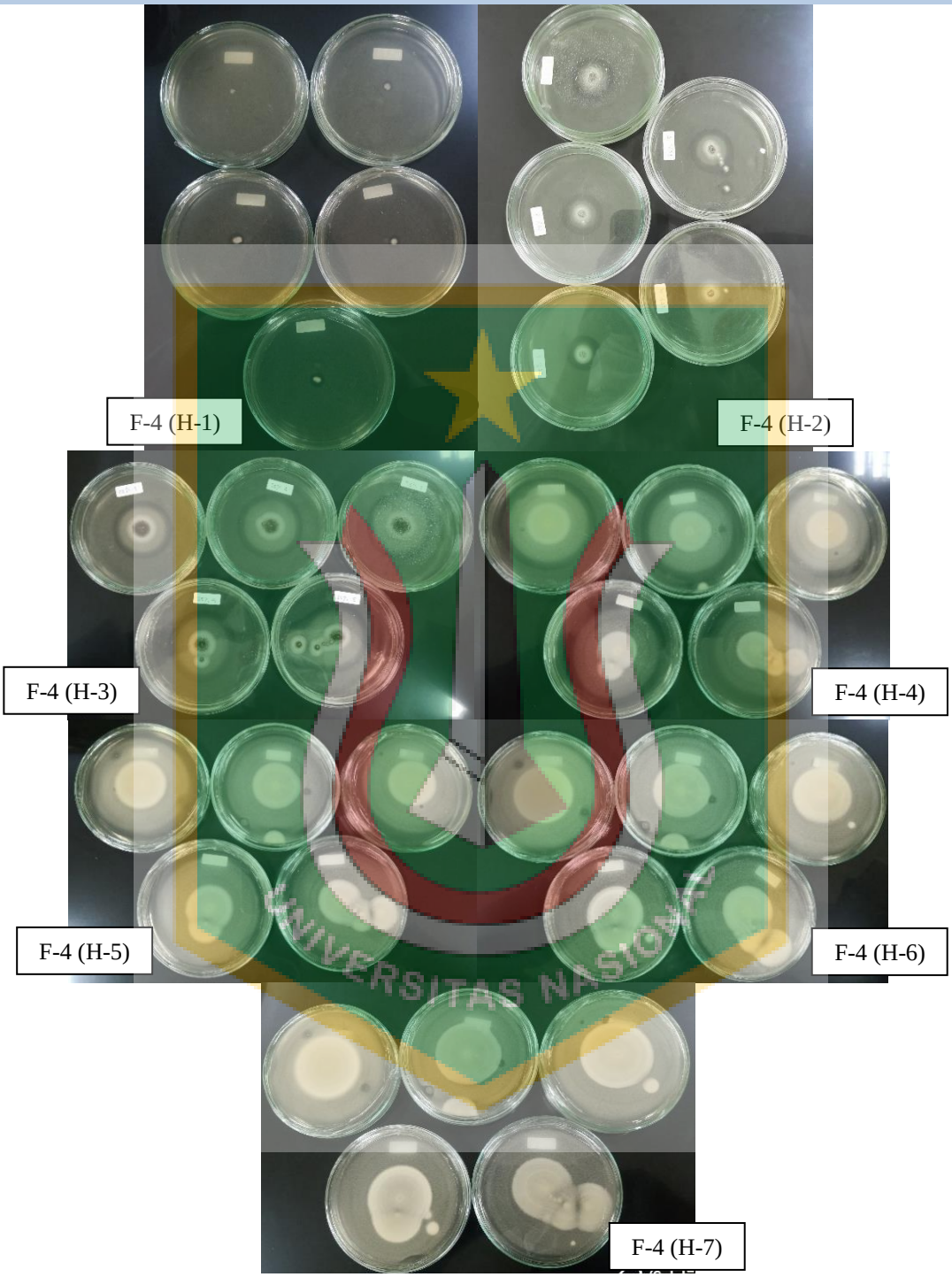
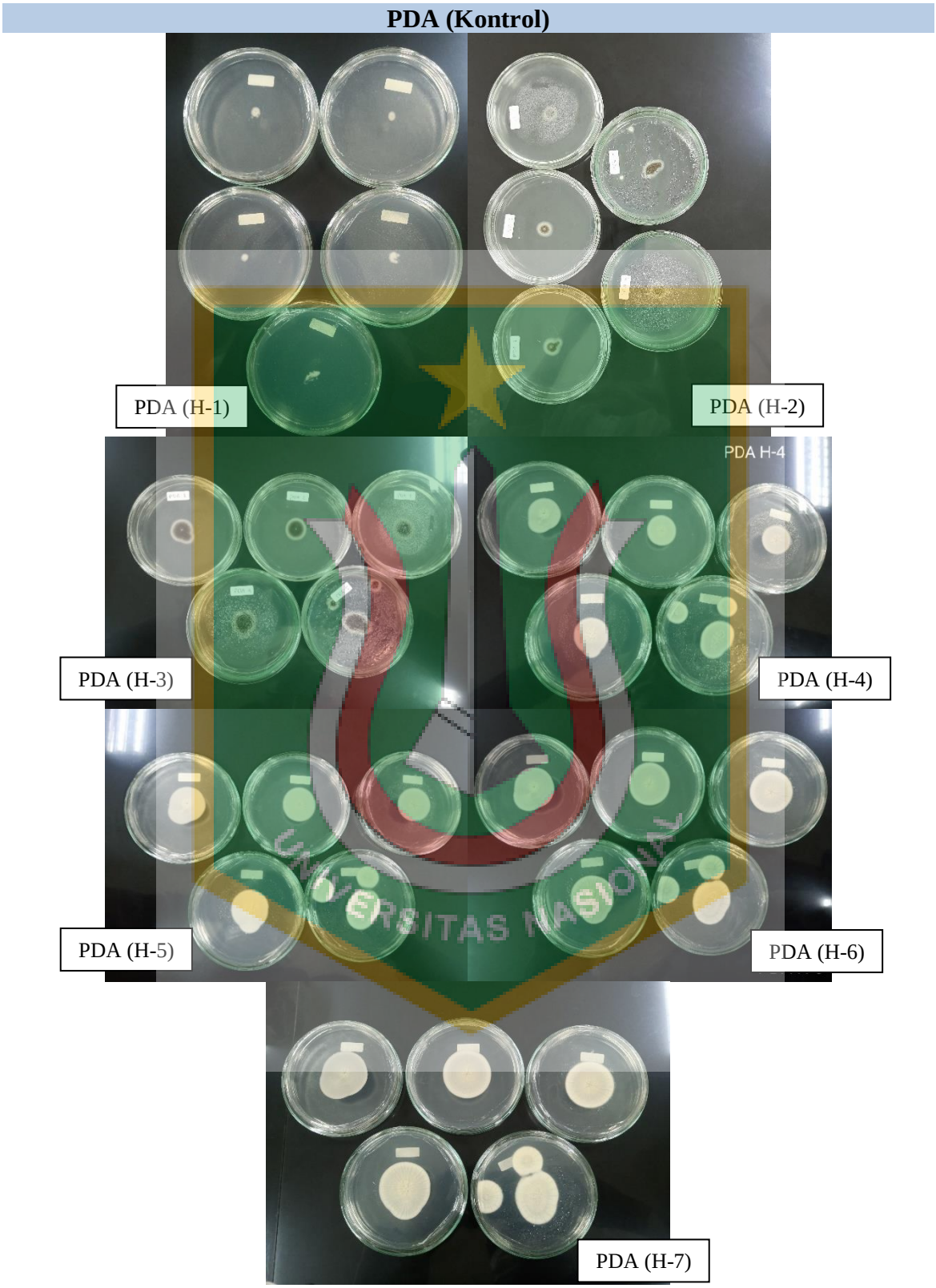
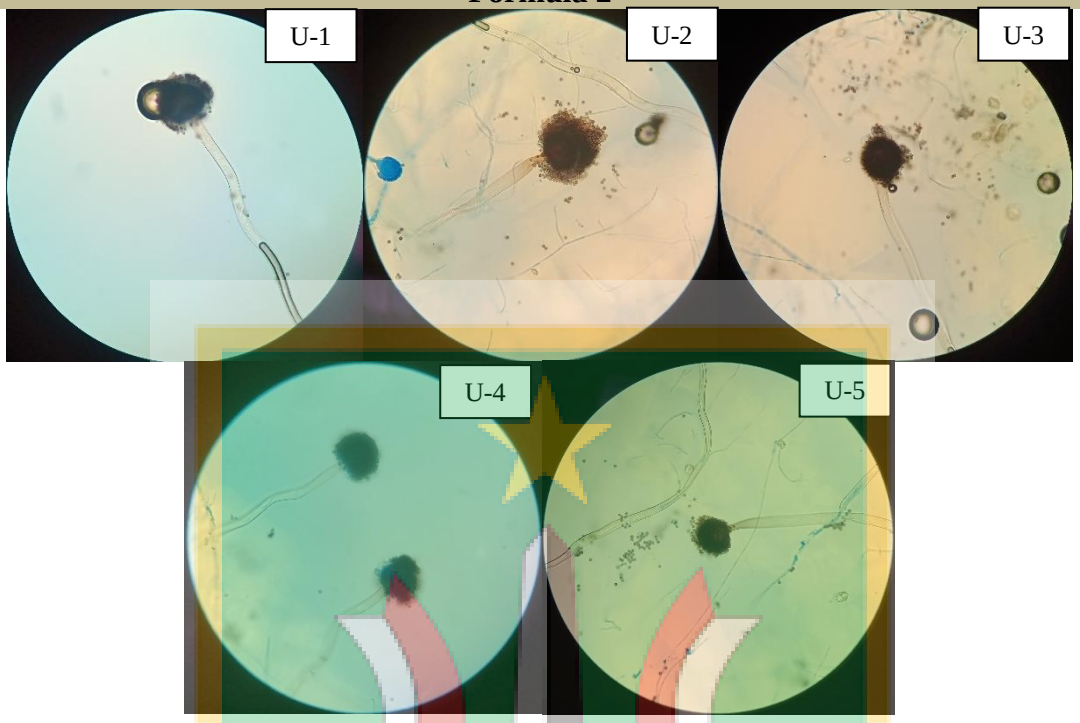




Gambar Lampiran 2. Pertumbuhan *A. niger* pada media makroalga dan PDA selama 7 hari

Formula 2



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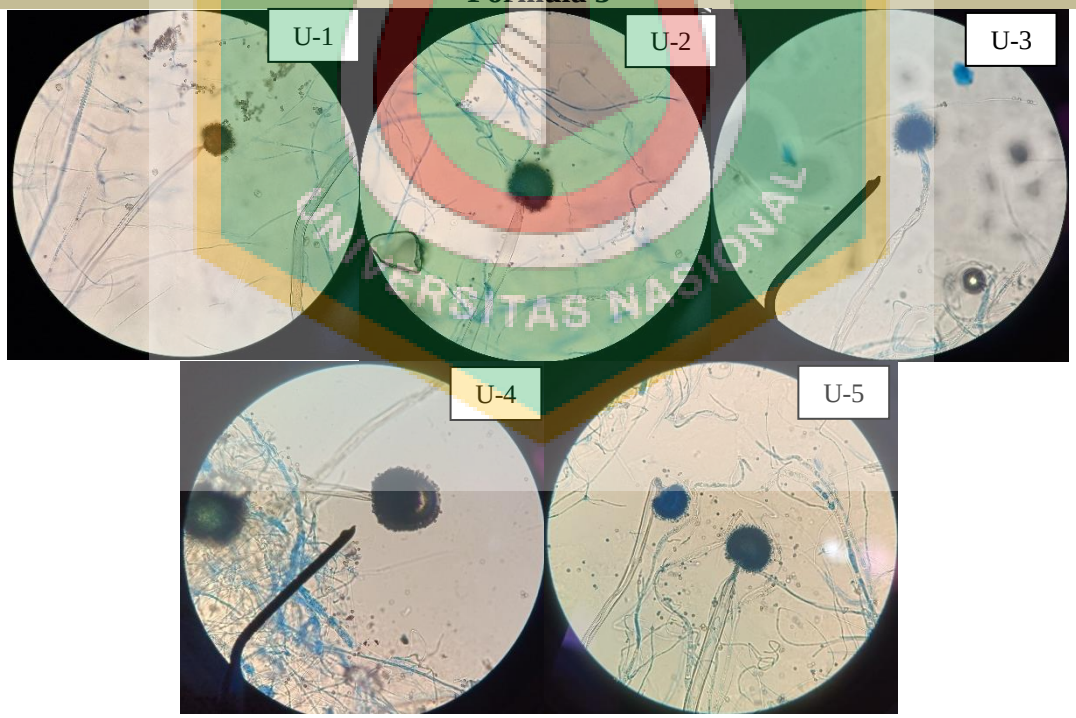

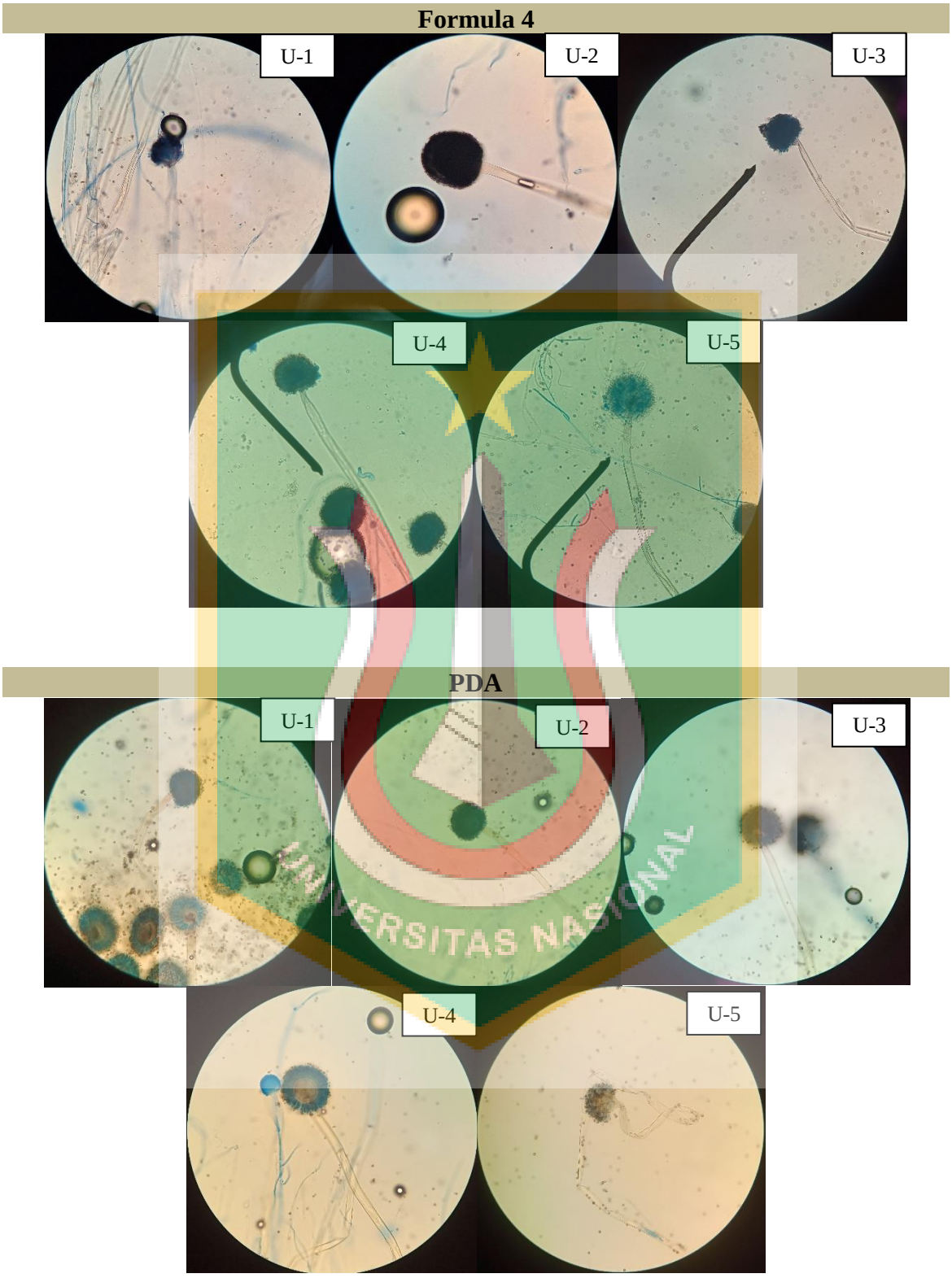

Gambar Lampiran 3. Pengamatan mikroskopis *A. niger* pada media makroalga dan PDA setelah inkubasi selama 7 hari (perbesaran 400 X)

LAMPIRAN II TABEL LAMPIRAN

Tabel Lampiran 1. Data hasil pengukuran diameter koloni A. niger pada media makroalga dan PDA selama 7 hari

TARAF PERLAKUAN	DIAMETER KOLONI (mm)					Rata-rata
	U_1	U_2	U_3	U_4	U_5	
HARI KE 1						
Formula 1	0	0	0	0	0	0
Formula 2	1,05	1,825	0,75	1,1	1,1	1,165
Formula 3	1,15	2,8	1,5	2,725	2,075	2,05
Formula 4	2,375	4,25	5,8	4,9	4,7	4,405
PDA	6,175	4,95	5,375	4,725	10,3	6,305
HARI KE 2						
Formula 1	0	0	0	0	0	0
Formula 2	6,75	7,975	7,7	7,575	7,75	7,55
Formula 3*	10,15	9,25	10,575	10,35	10,55	10,175
Formula 4*	13,175	14,175	14,375	13,2	12,775	13,54
PDA	14,825	14,15	14,15	15,675	17,95	15,35
HARI KE 3						
Formula 1	0	0	0	0	0	0
Formula 2*	12,475	11,225	15,9	14,825	14,375	13,76
Formula 3*	16,75**	14,275	17,325	16,825	17,775	16,59
Formula 4***	21,8	22,45	22,975	20,725	20,425	21,675
PDA	21,075	19,95	19,5	21,375	23,375	21,055
HARI KE 4						
Formula 1	0	0	0	0	0	0
Formula 2	17,85	15,75	22,5	23,0	21,05	20,03
Formula 3	24,15	19,6	23,4	23,0	23,55	22,74
Formula 4	30,1	30,225	30,1	26,75	25,7	28,575
PDA	27,275	24,8	25,1	27,6	29,55	26,865
HARI KE 5						
Formula 1	0	0	0	0	0	0
Formula 2	24,025	21,125	28,05	29,575	26,725	25,9
Formula 3	31,975	25,025	29,9	28,475	29,4	28,955
Formula 4	36,65	36,35	36,45	32,375	31,15	34,595
PDA	32,075	30,425	30,6	32,025	31,5	31,325
HARI KE 6						
Formula 1	0	0	0	0	0	0
Formula 2	29,35	25,525	33,95	34,5	32,5	31,165
Formula 3	39,475	30,5	36,3	34,225	35,325	35,165
Formula 4	40,7	41,25	41,45	37,9	35,4	39,34
PDA	35,575	34,9	34,45	37,3	32,7	34,985

HARI KE 7						
Formula 1	0	0	0	0	0	0
Formula 2	32,875	31,05	37,8	43,175	38,225	36,625
Formula 3	46,725	35,975	42,975	40,25	41,65	41,515
Formula 4	45,575	45,45	46,475	40,15	38,55	43,24
PDA	38,8	39,95	37,175	40,375	36,375	38,535

Tabel Lampiran 2. Output data hasil uji *one way* ANOVA diameter koloni *A. niger*

ANOVA

Diameter Koloni (mm)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6524.841	4	1631.210	149.727	.000
Within Groups	217.891	20	10.895		
Total	6742.732	24			

Tabel Lampiran 3. Output data hasil uji BNJ 5% dan homogeneous subsets diameter koloni *A. niger*

Multiple Comparisons

Dependent Variable: Diameter Koloni (mm)

Tukey HSD

(I) Taraf Perlakuan	(J) Taraf Perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
PDA	Formula 4	-4.70500	2.08754	.201	-10.9517	1.5417
	Formula 3	-2.98000	2.08754	.618	-9.2267	3.2667
	Formula 2	1.91000	2.08754	.888	-4.3367	8.1567
	Formula 1	38.53500*	2.08754	.000	32.2883	44.7817
Formula 4	PDA	4.70500	2.08754	.201	-1.5417	10.9517
	Formula 3	1.72500	2.08754	.919	-4.5217	7.9717
	Formula 2	6.61500*	2.08754	.035	.3683	12.8617
	Formula 1	43.24000*	2.08754	.000	36.9933	49.4867
Formula 3	PDA	2.98000	2.08754	.618	-3.2667	9.2267
	Formula 4	-1.72500	2.08754	.919	-7.9717	4.5217
	Formula 2	4.89000	2.08754	.173	-1.3567	11.1367
	Formula 1	41.51500*	2.08754	.000	35.2683	47.7617
Formula 2	PDA	-1.91000	2.08754	.888	-8.1567	4.3367
	Formula 4	-6.61500*	2.08754	.035	-12.8617	-.3683
	Formula 3	-4.89000	2.08754	.173	-11.1367	1.3567

	Formula 1	36.62500*	2.08754	.000	30.3783	42.8717
Formula 1	PDA	-38.53500*	2.08754	.000	-44.7817	-32.2883
	Formula 4	-43.24000*	2.08754	.000	-49.4867	-36.9933
	Formula 3	-41.51500*	2.08754	.000	-47.7617	-35.2683
	Formula 2	-36.62500*	2.08754	.000	-42.8717	-30.3783

*. The mean difference is significant at the 0.05 level.

Diameter Koloni (mm)

Tukey HSD[a]

Taraf Perlakuan	N	Subset for alpha = 0.05		
		1	2	3
Formula 1	5	.0000		
Formula 2	5		36.6250	
PDA	5		38.5350	38.5350
Formula 3	5		41.5150	41.5150
Formula 4	5			43.2400
Sig.		1.000	.173	.201

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Tabel Lampiran 4. Perhitungan Laju Pertumbuhan *A. niger*

Rumus laju pertubuhan:

$$V = \frac{Diameter\ akhir - Diameter\ awal}{Rentang\ jumlah\ hari}$$

Taraf Perlakuan	Ulangan	Laju Pertumbuhan (mm/hari)
Formula 1	1-5	Tidak tumbuh
Formula 2	1	$\frac{32,875 - 1,05}{6} = 5,30$
	2	$\frac{31,05 - 1,825}{6} = 4,87$
	3	$\frac{37,8 - 0,75}{6} = 6,18$
	4	$\frac{43,175 - 1,1}{6} = 7,01$
	5	$\frac{38,225 - 1,1}{6} = 6,19$
Rata-rata: 5,91 mm/hari		

Formula 3	1	$\frac{46,725 - 1,15}{6} = 7,60$
	2	$\frac{35,975 - 2,8}{6} = 5,53$
	3	$\frac{42,975 - 1,5}{6} = 6,91$
	4	$\frac{40,25 - 2,725}{6} = 6,25$
	5	$\frac{41,65 - 2,075}{6} = 6,60$
		Rata-rata: 6,58 mm/hari
Formula 4	1	$\frac{45,575 - 2,375}{6} = 7,20$
	2	$\frac{45,45 - 4,25}{6} = 6,87$
	3	$\frac{46,475 - 5,8}{6} = 6,78$
	4	$\frac{40,15 - 4,9}{6} = 5,88$
	5	$\frac{38,55 - 4,7}{6} = 5,64$
		Rata-rata: 6,47 mm/hari
PDA	1	$\frac{38,8 - 6,175}{6} = 5,44$
	2	$\frac{39,95 - 4,95}{6} = 5,83$
	3	$\frac{37,175 - 5,375}{6} = 5,30$
	4	$\frac{40,375 - 4,725}{6} = 5,94$
	5	$\frac{36,375 - 10,3}{6} = 5,45$
		Rata-rata: 5,59 mm/hari

Tabel Lampiran 5. Output data hasil uji one way ANOVA laju pertumbuhan *A. niger*

ANOVA

Laju Pertumbuhan (mm/hari)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	154.008	4	38.502	105.365	.000
Within Groups	7.308	20	.365		
Total	161.316	24			

Tabel Lampiran 6. Output data hasil uji BNJ 5% dan homogeneous subsets laju pertumbuhan *A. niger*

Multiple Comparisons

Dependent Variable: Laju Pertumbuhan (mm/hari)

Tukey HSD

(I) Taraf Perlakuan	(J) Taraf Perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-5.91000*	.38232	.000	-7.0540	-4.7660
	Formula 3	-6.57800*	.38232	.000	-7.7220	-5.4340
	Formula 4	-6.47400*	.38232	.000	-7.6180	-5.3300
	PDA	-5.59200*	.38232	.000	-6.7360	-4.4480
Formula 2	Formula 1	5.91000*	.38232	.000	4.7660	7.0540
	Formula 3	-.66800	.38232	.430	-1.8120	.4760
	Formula 4	-.56400	.38232	.589	-1.7080	.5800
	PDA	.31800	.38232	.918	-.8260	1.4620
Formula 3	Formula 1	6.57800*	.38232	.000	5.4340	7.7220
	Formula 2	.66800	.38232	.430	-.4760	1.8120
	Formula 4	.10400	.38232	.999	-1.0400	1.2480
	PDA	.98600	.38232	.113	-.1580	2.1300
Formula 4	Formula 1	6.47400*	.38232	.000	5.3300	7.6180
	Formula 2	.56400	.38232	.589	-.5800	1.7080
	Formula 3	-.10400	.38232	.999	-1.2480	1.0400
	PDA	.88200	.38232	.184	-.2620	2.0260
PDA	Formula 1	5.59200*	.38232	.000	4.4480	6.7360
	Formula 2	-.31800	.38232	.918	-1.4620	.8260
	Formula 3	-.98600	.38232	.113	-2.1300	.1580
	Formula 4	-.88200	.38232	.184	-2.0260	.2620

*. The mean difference is significant at the 0.05 level.

Laju Pertumbuhan (mm/hari)

Tukey HSD[a]

Taraf Perlakuan	N	Subset for alpha = 0.05	
		1	2
Formula 1	5	.0000	
PDA	5		5.5920
Formula 2	5		5.9100
Formula 4	5		6.4740
Formula 3	5		6.5780
Sig.		1.000	.113

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

LAMPIRAN III SURAT IZIN PENELITIAN

UNIVERSITAS NASIONAL
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Nomor : 345/DEK/FBP-PB/I.11/VI/2023
Perihal : Permohonan Izin Masuk Kawasan Konservasi (SIMAKSI)
Lampiran : 1(satu) Berkas

Kepada Yth.,

Kepala Balai Taman Nasional Laut Kepulauan Seribu
Jln. Salemba Raya No.09 RT.01/RW.03,
Paseban, Kec. Senen , Jakarta Pusat 10440

Dengan hormat,

Bersama surat ini, kami Fakultas Biologi dan Pertanian Universitas Nasional bermaksud untuk mengajukan Surat Izin Masuk Kawasan Konservasi di Kawasan Taman Nasional Kepulauan Seribu dalam rangka kegiatan penelitian "Keanekaragaman Makroalga dan Potensinya sebagai antioksidan" Kegiatan tersebut akan dilaksanakan pada:

Hari/tanggal : Jum'at s/d Minggu , 30 Juni – 2 Juli i 2023
Lokasi : 1. Pulau Pramuka (SPTN Wilayah III)
2. Pulau Opak (SPTN Wilayah III)
Peneliti : Dra. Sri Handayani, M.Si (Ketua)
Anggota : Tim Terlampir

Demi kelancaran dan terlaksananya kegiatan tersebut, kami mohon dengan hormat kepada Bapak/Ibu Kepala Balai Taman Nasional Kepulauan Seribu untuk dapat memberikan Surat Izin Masuk Kawasan Konservasi (SIMAKSI).

Demikian surat permohonan ini kami sampaikan, atas perhatian dan kerjasamanya kami ucapkan terimakasih.

Jakarta, 30 Juni 2023
Dekan

Dr. Jating Mitra Setia, M.Si

UNIVERSITAS NASIONAL
FAKULTAS BIOLOGI DAN PERTANIAN
Program Studi Biologi Akreditasi Unggul
Program Studi Agroteknologi Akreditasi B
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Lampiran Surat Dekan Nomor: 345/DEK/FBP-PB/1.11/VI/2023

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2. Fara Azzahra
3. Balqis Ratu
4. Ziyadatul Hoiroh
5. Irfan Adipradipta
6. Syafira Manda Rahmadiny Al ayubi
7. Miftahul Jannah
8. Joan

Jakarta, 19 Juni 2023
Dekan,

Dr. Ir. Sutrisno Mitra Setia, M.Si

MAKROALGA Eucheuma cottonii SEBAGAI MEDIA PERTUMBUHAN JAMUR

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