

DAFTAR PUSTAKA

- Ashenafi S, 2013. Karolinska Institutet , Stockholm , Sweden Studies of immune responses in human tuberculosis.
- Abbas, A.K., Lichtman, A.H., Pillai, S., 2015. Cellular and molecular immunology.
- Abdeahad H, et al. Clinical association between Phospho-AKT expression with clinicopathological characteristics of gastrointestinal cancer patients: a meta-analysis. *Crit Rev Eukaryot Gene Expr.* 2020;30(4):299–309.
- Aditama, Y.T., Soedarsono, Z.T., Wiryokusumo, H.S., Hilaludin, S., Bagus, N.R.I., 2006. Tuberkulosis: Pedoman Diagnosis dan Penatalaksanaan di Indonesia. Jakarta PDPI.
- Ahmed, S.O., Kharal, S.A., Shahzad, M.A., Hassan, S.S., 2008. Evaluation of Anti A60 IgM for The Diagnosis Of Tuberculosis With ELISA Method 28(2), 51–57.
- Bagchi, A. (2012). Extraction of curcumin. *IOSR Journal of Environment Science, Toxicology and Technology (IOSR-JESTFT)*. 1(3): 01-16.
- Baratawidjaja, K.G., Rengganis, I., 2014. *Imunologi Dasar edisi ke-10*. Jakarta Fak.Kedokt. Univ. Indonesia.
- Bahrami A, Majeed M, Sahebkar A. Curcumin: a potent agent to reverse epithelial-to-mesenchymal transition. *Cell Oncol.* 2019;42(4):405–421.
- Bahrami A, Ferns GA. Effect of curcumin and Its derivates on gastric cancer: molecular mechanisms. *Nutr Cancer.* 2020;73(9):1553–69.
- Bahrami A, et al. Genetic and epigenetic factors influencing vitamin D status. *J Cell Physiol.* 2018;233(5):4033–4043.
- Bartik L, et al. Curcumin: a novel nutritionally derived ligand of the vitamin D receptor with implications for colon cancer chemoprevention. *J Nutr Biochem.* 2010;21(12):1153–1161. [PMC free article] [PubMed] [Google Scholar]
- Barua N, Buragohain A.K. Therapeutic Potential of Curcumin as an Antimycobacterial Agent. *Biomolecules.* 2021 Sep; 11(9): 1278. doi: [10.3390/biom11091278](https://doi.org/10.3390/biom11091278). [PubMed]

- Delogu, G., Sali, M., Fadda, G. (2013). *The Biology of Mycobacterium Tuberculosis Infection. Mediterranean Journal of Hematology and Infectious Diseases*, 5(1), 2013070. <https://doi.org/10.4084/mjihid.2013.070>
- Eke-Okoro, U.J.; Raffa, R.B.; Pergolizzi, J.V., Jr.; Breve, F.; Taylor, R., Jr.; NEMA Research Group. Curcumin in turmeric: Basic and clinical evidence for a potential role in analgesia. *J. Clin. Pharm. Ther.* **2018**, 43, 460–466.
- Bertone-Johnson ER, et al. Dietary vitamin D intake, 25-hydroxyvitamin D3 levels and premenstrual syndrome in a college-aged population. *J Steroid Biochem Mol Biol.* 2010;121(1–2):434–437. [PubMed] [Google Scholar]
- Harti, A.S. (2013). *Imunologi Dasar dan Imunologi Klinis*. Yogyakarta: Graha Ilmu
- Flynn, J.A.L., Chan, J., 2005. What's good for the host is good for the bug *Trends Microbiol.* 13,98102. <https://doi.org/10.1016/j.tim.200501.005>
- Febriza, A., Kasim, V.N.A., Idrus, H.H., Hatta, M., 2019. The effects of curcumin and vitamin d combination as inhibitor toward Salmonella typhi bacteria growth in vivo. *Int. J. Appl. Pharm.* 11, 116–120. <https://doi.org/10.22159/ijap.2019.v11s5.T0093>
- G. V. Dangeti, et al. Vitamin D deficiency in patients with tuberculous meningitis and its relationship with treatment outcome. *Int. J. Tuberc. Lung Dis.* Vol. 22. No. 1, pp. 93-99. 2018.
- Harjono, Indro, 2004, *Imunoasai terapan pada beberapa penyakit infeksi*, Airlangga University Press: Surabaya.
- Irianti, Dr. Rer. Net. T, Kuswandi, Yasin, Dr. N. M, Kusumaningtyas, R. A. 2016. *Mengenal Anti-Tuberkulosis*. Yogyakarta
- Idrus, H.H., Hatta, M., Febriza, A., Kasim, V.N.A., 2019. Antibacterial activities of sapodilla fruit extract inhibiting Salmonella typhi on

mice BALB/c. *Int. J. Appl. Pharm.* 11,121 – 126.
<https://doi.org/10.22159/ijap.2019.v11s5.T0095>

Jiezhong Dong, et al Vitamin D receptor activated by vitamin D administration alleviates *Mycobacterium tuberculosis*-induced bone destruction by inhibiting NF κ B mediated aberrant osteoclastogenesis. *The fasejournal* 2021. DOI: 10.1096/fj.202100135R

Jinjie Yu, et al. Association of Single-Nucleotide Polymorphisms in the *VDR* Gene with Tuberculosis and Infection of Beijing Genotype *Mycobacterium tuberculosis* . *Infection and Drug Resistance* 2023;16 3157–3169

Khajehei M, et al. Effect of treatment with dydrogesterone or calcium plus vitamin D on the severity of premenstrual syndrome. *Int J Gynecol Obstet.* 2009;105(2):158–161. [PubMed] [Google Scholar]

Kurniawan, F.B., & Sahli, I.T.(2018). *Bakteriologi : Praktikum Teknologi Laboratorium Medik* , EGC: Jakarta

Koch, A., Mizhari, V.(2018). *Mycobacterium tuberculosis*. *Trend in Microbiology*,26(6), 555-556. <https://doi.org/10.1016/j.tim.2018.02.012>

Kim JH, et al. Turmeric (*Curcuma longa*) inhibits inflammatory nuclear factor (NF)- κ B and NF- κ B-regulated gene products and induces death receptors leading to suppressed proliferation, induced chemosensitization, and suppressed osteoclastogenesis. *Mol Nutr Food Res.* 2012;56(3):454–465. [PMC free article] [PubMed] [Google Scholar]

Kuswiyanto, (2015). *Bakteriologi 1*. EGC:Jakarta

Katoch, V.M., 2004. Newer diagnostic techniques for tuberculosis. *Indian J. Med. Res.* 120, 418–428.

Latief.A.(2009). *Obat Tradisional*. Jakarta : EGC

Leyla Arabnezhad, Mahtab Mohammdifard, Ladan Rahmani, Zahra Majidi, Gordon A. Ferns, dan Afsane Bahrami. Effect of curcumin supplementation on vitamin D levels in women with premenstrual syndrome and dysmenorrhea: a randomized controlled study. *BMC Complement. Med. Ther.* Vol. 22. No. 19. 2022.

- Meita, H., Lisyani, S., 2014. Uji Diagnosis Basil Tahan Asam pada Sputum dan Immunochromatography Tuberculosis Menggunakan Sampel Serum dan Darah Kapiler. *MEDICA Hosp. Clin. Med.* 2.
- Migliori, G.B., Luna, J.C., Kurhasani, X., Boom, M.V., Visca, D., Ambrosio, L.D., Centis, L., Tiberi, S. (2022). History of prevention, diagnosis, treatment and rehabilitation of pulmonary sequelae of tuberculosis. *Elsevier Masson SAS*.
- Mandal, B.K., dkk (2004). *Lecture Notes : Penyakit Infeksi*. Jakarta : Penerbit Erlangga
- Malahayati, N., Widowati, T.W., Febrianti, A. (2020). Karakterisasi Ekstrak Kurkumin dari Kunyit Putih (*Kaemferia rotunda L.*) dan Kunyit Kuning (*Curcuma domestica Val.*). *agriTECH*, 41 (2) 2021, 134-144.
- Mangwani N., Singh P.K., Kumar V. Medicinal plants: Adjunct treatment to tuberculosis chemotherapy to prevent hepatic damage. *J. Ayurveda Integr .Med.* 2020;11:522–528. doi: 10.1016/j.jaim.2019.02.004. [[PMC free article](#)] [[PubMed](#)]
- N. Talat, S. Perry, J. Parsonnet, G. Dawood, and R. Hussain. Vitamin D deficiency and tuberculosis progression. *Emerg. Infect. Dis.*, Vol. 16. No. 5. Pp 853-855. 2010.
- Pollack, Robert, dkk. (2016). *Praktik Laboratorium Mikrobiologi*, edisi 4, EGC: Jakarta.
- Parsamanesh N, et al. Therapeutic potential of curcumin in diabetic complications. *Pharmacol Res.* 2018;136:181–193.
- Pletz MW, Terkamp C, Schumacher U, et al. Vitamin D deficiency in community-acquired pneumonia: low levels of 1,25(OH)₂D are associated with disease severity. *Respiratory research.* 2014 April 27; doi:10.1186/1465-9921-15-53 : 1-8
- Rimporok, A., Budiarmo, F., Fatimawali. 2020. Uji Anti Bakteri Ekstrak Daun Tanaman Kaki Kuda (*Centella asiatica L.* Urban) sebagai Tumbuhan Obat Anti Tuberculosis. *Jurnal Biomedik.* 31-37.
- Ramirez-Rueda, R.Y. (2016). Mycobacterium tuberculosis: clinical and microbiological aspects. *The Mycobiology of Respiratory System*

Infections. Elsevier Inc. <https://doi.org/10.1016/B978-0-12-804543-5.00011-7>

- Rekha RS, Rao Muvva SS, Wan M, et al. Phenylbutyrate induces LL-37-dependent autophagy and intracellular killing of *Mycobacterium tuberculosis* in human macrophages. *Autophagy* 2015; 11:1688–99.
- Sari, T.A.P. (2020). Potensi Aktivitas Anti-Tuberkulosis Ekstrak Daun Pegagan (*Centella Asiatica* L. Urban) dalam Menghambat Pertumbuhan *Mycobacterium Tuberculosis*. *Jurnal Ilmiah Kesehatan Sandi Husada*. Volume 12. No 2.
- Sakamoto, K., 2012. The Pathology of *Mycobacterium tuberculosis* Infection. *Vet. Pathol.* 49, 423–439. <https://doi.org/10.1177/0300985811429313>
- Suharsanti, R., Astutiningsih, C., Susilowati, N.D. (2020). Kadar Kurkumin Ekstrak Rimpang Kunyit (*Curcuma domestica*) Secara klt densitometri dengan perbedaan metode ekstraksi. *Jurnal wiyata*.
- Shan, C.Y., Iskandar, Y. (2018). Studi Kandungan Kimia dan Aktivitas Farmakologi Tanaman Kunyit (*Curcuma longa* L.). *Farmaka Suplemen Volume 16 Nomor 2*
- S. Brighenti, P. Berhman, and A. R. Martineau. Vitamin D and tuberculosis: where next?. *J. Intern. Med.*, Vol. 284. No. 2. pp: 145-162. 2018.
- Soleimani V., Sahebkar A., Hosseinzadeh H. Turmeric (*Curcuma longa*) and its major constituent (curcumin) as nontoxic and safe substances. *Phytother. Res.* 2018;32:985–995. doi:10.1002/ptr.6054. [PubMed]
- Tomeh, M.A.; Hadianamrei, R.; Zhao, X. A review of curcumin and its derivatives as anticancer agents. *Int. J. Mol. Sci.* **2019**, *20*, 1033. [PubMed]
- Verma, RK., Kumari, P., Maurya, RK., Kumar, V., & Singh, RK. (2018). Medicinal Properties Of Turmeric (*Curcuma longa* L.): A Review. *International Journal Of Chemical Studies*, 6(4): 1354-1357.
- Xin M, et al. Attenuation of hind-limb suspension-induced bone loss by curcumin is associated with reduced oxidative stress and

increased vitamin D receptor expression. *Osteoporos Int.* 2015;26(11):2665–2676. [PubMed] [Google Scholar]

Yadav,R.P., Tarun,G.(2017). Versatility of turmeric: A review the golden spice of life. *Journal of Pharmacognosy and Phytochemistry* ; 6(1): 41-46

Yuliati. (2016). Uji Efektivitas Ekstrak Kunyit sebagai Antibakteri Dalam Pertumbuhan *Bacillus* sp Dan *Shigella Dysentriae* Secara in Vitro. *Jurnal Profesi Medika* .ISSN 0216-3438 Vol.10, No.1, Januari – Juni 2016

Wahdi,A.,Puspitasari,D.R., (2021).Mengenal Tuberculosis. CV.Pena Persada : Purwokerto Selatan.

Wahono, C.S., Saveria I.,Kalim,H., Handono,K. (2019). The effect of *Curcuma Xanthorrhiza* addition to Vitamin D₃ supplementation on fatigue and cytokines serum levels in SLE patients with hypovitaminosis D. *Udayana Journal of Internal Medicine*. Volume 3, No 2 : 2019

World Health Organization. 2022 Laporan tuberkulosis global. Jenewa.

Lampiran 1:**Hasil Analisa Mouse Vitamin D Receptor (VDR) ELISA Kit Catalog No. LS-F33484**

No	Kelompok	HASIL ELISA MOUSE VDR (ng/ml)					
		I	VDR	II	VDR	III	VDR
1	1. Placebo	SA01	29,99	SB01	20,96	SC01	17,9
2		SA02	31,09	SB02	20,87	SC02	17,54
3		SA03	27,84	SB03	22,78	SC03	17,54
4		SA04	31,96	SB04	19,65	SC04	18,06
5		SA05	31,7	SB05	22,52	SC05	17,05
6	2. OAT	SA06	31,04	SB06	23,76	SC06	29,05
7		SA07	28,61	SB07	20,36	SC07	28,23
8		SA08	31,24	SB08	22,96	SC08	27,84
9		SA09	29,05	SB09	21,41	SC09	30,21
10		SA10	29,8	SB10	21,15	SC10	28,5
11	3. Kurkumin	SA11	28,71	SB11	23,67	SC11	27,31
12		SA12	30,14	SB12	22,08	SC12	26,94
13		SA13	32,58	SB13	21,85	SC13	26,65
14		SA14	32,16	SB14	22,3	SC14	26,7
15		SA15	29,6	SB15	21,63	SC15	26,12
16	4. OAT + Kurkumin	SA16	29,49	SB16	19,86	SC16	30,28
17		SA17	32,36	SB17	20,28	SC17	31,69
18		SA18	30,31	SB18	20,54	SC18	33,11
19		SA19	30,67	SB19	23,61	SC19	29,55
20		SA20	31,18	SB20	23,47	SC20	32,16

Keterangan sampel (serum) :

1. Sebelum perlakuan
2. Setelah perlakuan (Infeksi *M.tb* selama dua minggu)
3. Setelah intervensi (perlakuan dan pengobatan selama dua minggu)

Lampiran 2 :

Hasil Pemeriksaan Bacterial LOAD

No	Kelompok	Hasil BTA (100 Ip)	
		I	II
1	1. Placbo	78	321
2		82	352
3		97	319
4		62	428
5		73	402
6	2. OAT	77	0
7		86	0
8		80	0
9		75	0
10		65	0
11	3. Kurkumin	81	97
12		87	150
13		96	78
14		62	92
15		63	107
16	4. OAT + Kurkumin	76	0
17		88	0
18		72	0
19		60	0
20		91	0

Ket :

1 = Setelah Perlakuan (Infeksi *Mycobacterium tuberculosis* 2 minggu)

2 = Setelah Intervensi

Lampiran 3 :

Rekomendasi Persetujuan Etik



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
 UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN
 KOMITE ETIK PENELITIAN UNIVERSITAS HASANUDDIN
 RSPTN UNIVERSITAS HASANUDDIN
 RSUP Dr. WAHIDIN SUDIROHUSODO MAKASSAR
 Sekretariat : Lantai 2 Gedung Laboratorium Terpadu
 JL.PERINTIS KEMERDEKAAN KAMPUS TAMALANREA KML10 MAKASSAR 90245.



Contact Person: dr. Agussalim Bukhari, M.Med.Ph.D, Sp.GK TELP. 081241850858, 0411 5780303, Fax : 0411-581431

REKOMENDASI PERSETUJUAN ETIK Nomor : 273/UN4.6.4.5.31/ PP36/ 2023

Tanggal: 3 Mei 2023

Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan Dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

No Protokol	UH23030153	No Sponsor Protokol	
Peneliti Utama	Muh.Ihwan	Sponsor	
Judul Peneliti	ANALISIS KADAR PROTEIN VITAMIN D RESEPTOR (VDR) PADA MENCIT BALB/C YANG DI INFEKSI DENGAN Mycobacterium tuberculosis SETELAH PEMBERIAN KURKUMIN		
No Versi Protokol	1	Tanggal Versi	3 Maret 2023
No Versi PSP		Tanggal Versi	
Tempat Penelitian	Laboratorium Biologi Molekuler dan imunologi bagian Mikrobiologi FKUH Makassar		
Jenis Review	<input type="checkbox"/> Exempted <input checked="" type="checkbox"/> Expedited <input type="checkbox"/> Fullboard Tanggal	Masa Berlaku 3 Mei 2023 sampai 3 Mei 2024	Frekuensi review lanjutan
Ketua KEP Universitas Hasanuddin	Nama Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)	Tanda tangan	
Sekretaris KEP Universitas Hasanuddin	Nama dr. Agussalim Bukhari, M.Med.,Ph.D.,Sp.GK (K)	Tanda tangan	

Kewajiban Peneliti Utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
- Menyerahkan Laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan Lapoe SUSAR dalam 72 Jam setelah Peneliti Utama menerima laporan
- Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
- Menyerahkan laporan akhir setelah Penelitian berakhir
- Melaporkan penyimpangan dari prokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditentukan

Lampiran 4 :

Dokumentasi Kegiatan : Perlakuan Hewan Coba



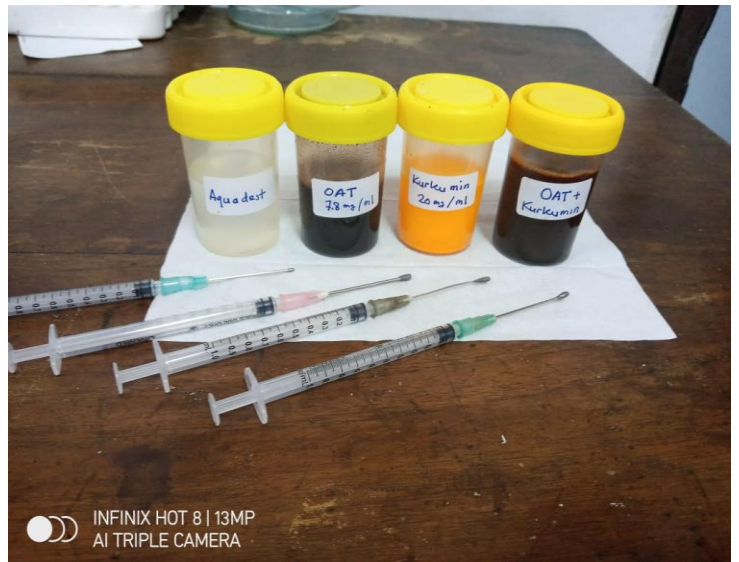
1. Pengelompokan mencit galur Balb/C



2. Infeksi *M.tb*



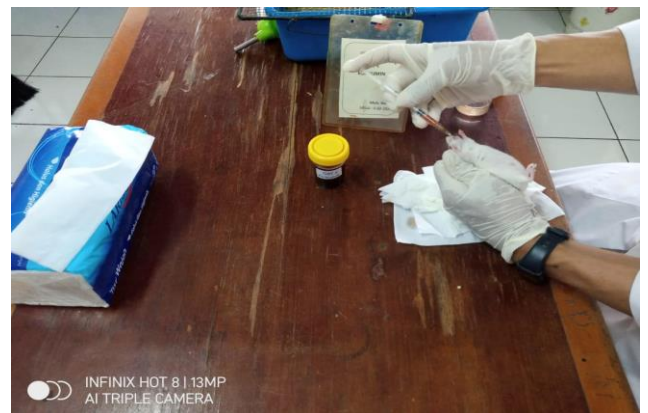
3. Pengambilan sampel darah



4. Sediaan Placebo, OAT, Kurkumin, Kurkumin+ OAT

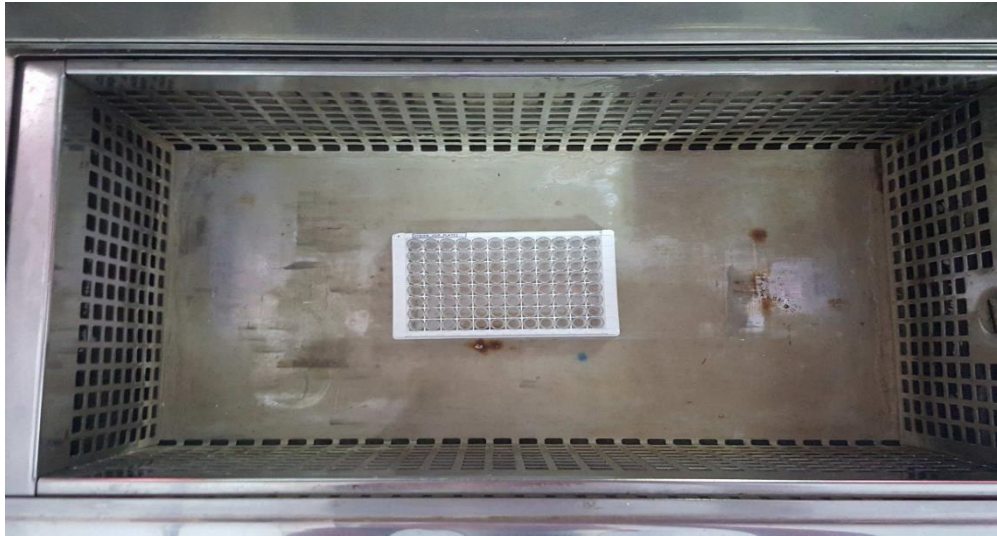


5. Sonde kurkumin



6. Sonde kurkumin + OAT

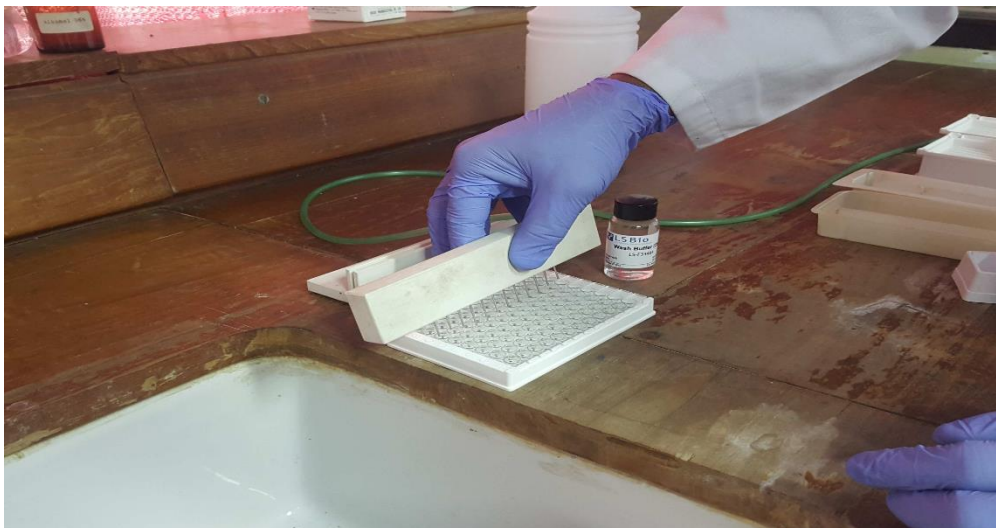
4. Lakukan Inkubasi selama 1 jam pada 37°C



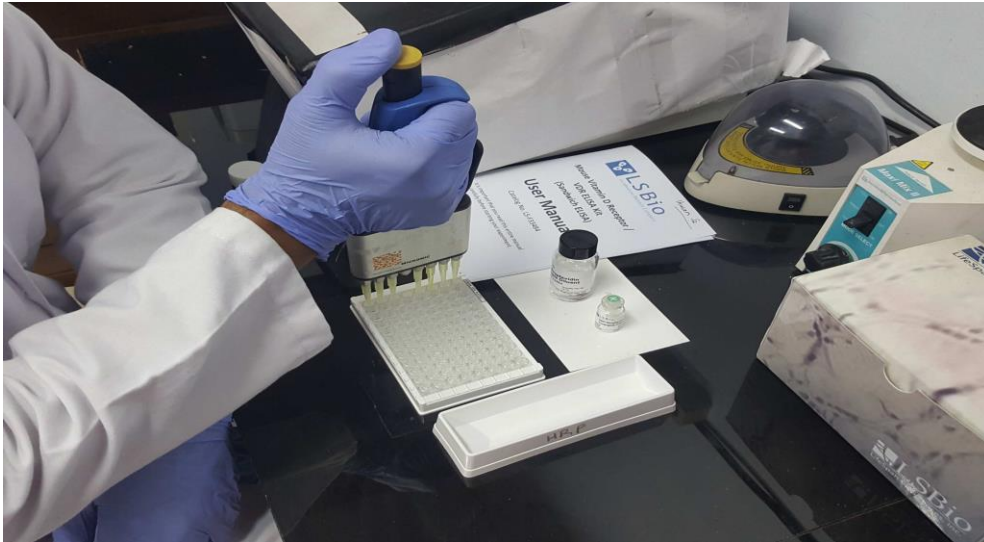
5. Keluarkan cairannya. Tambahkan 100uL reagen deteksi A. Inkubasi selama 1 jam pada suhu 37°C



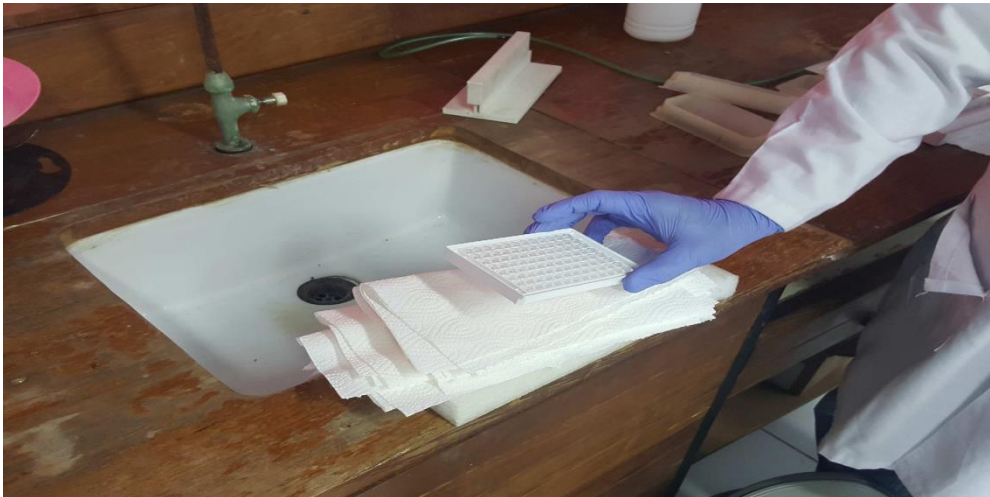
6. Aspirasi dan cuci 3 kali



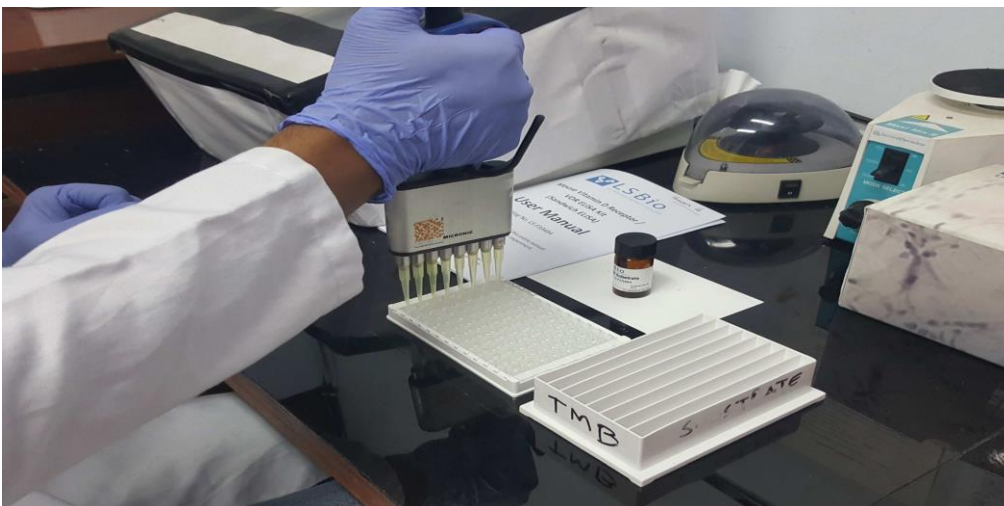
7. Tambahkan 100uL reagen deteksi B dan lakukan inkubasi selama 30 menit pada suhu 37°C



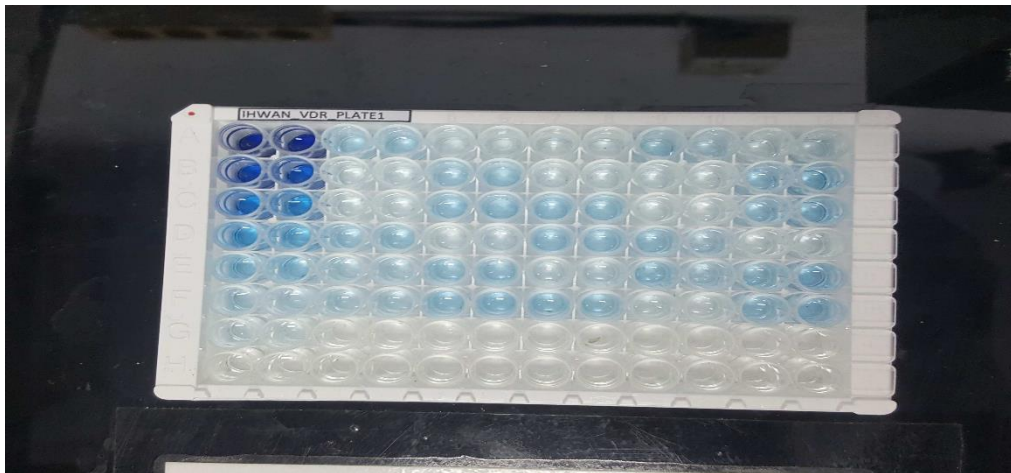
8. Aspirasi dan cuci 5 kali



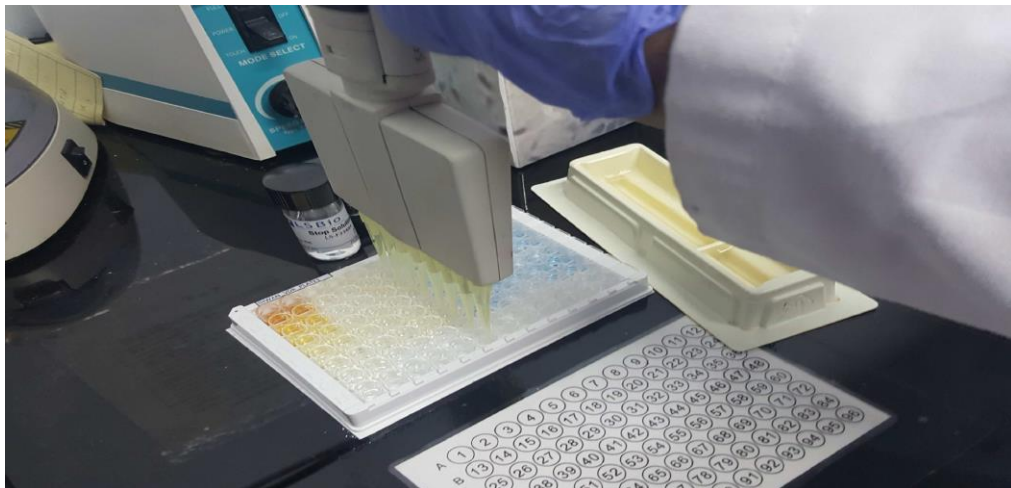
9. Masukkan 90µL reagen substrat TMB . lalu inkubasi selama 10-20 menit pada suhu 37°C



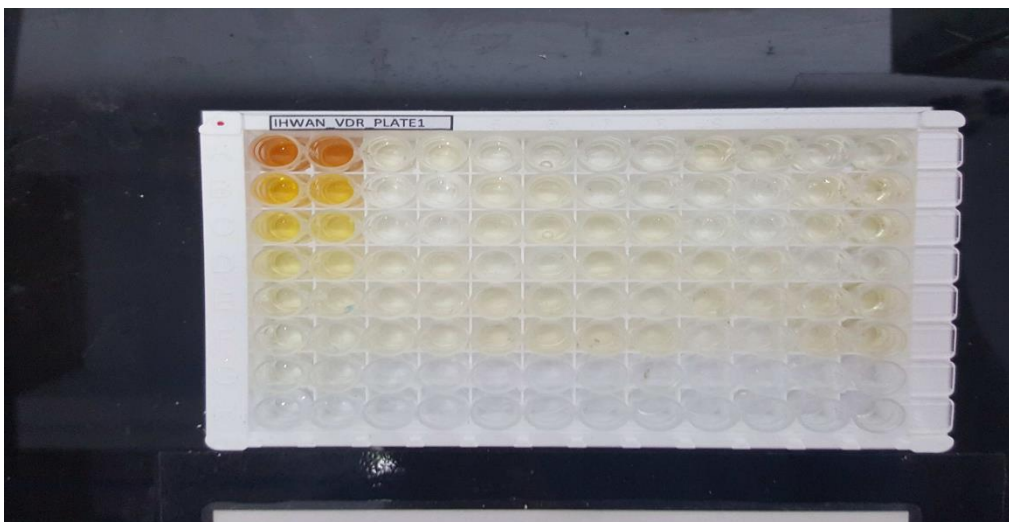
10. Kondisi Plate setelah 15 menit pemberian substrat



11. Tambahkan 50 μ L Stop Solution. Warna biru akan menjadi warna kuning



12. Plate setelah penghentian reaksi



13. Read at 450 nm Immediately and calculation of result



Lampiran 5 : Analisa Statistik

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	VDR_I	30.4760	20	1.34713	.30123
	VDR_II	21.7855	20	1.31962	.29507

Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	VDR_I - VDR_II	8.69050	1.91063	.42723	7.79630	9.58470	20.342	19	.000

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	VDR_I	30.4760	20	1.34713	.30123
	VDR_III	26.1215	20	5.37323	1.20149

Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	VDR_I - VDR_III	4.35450	5.54206	1.23924	1.76074	6.94826	3.514	19	.002

Oneway

Descriptives

VDR_I

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					PLASEBO	5		
OAT	5	29.9480	1.17050	.52346	28.4946	31.4014	28.61	31.24
KURKUMIN	5	30.6380	1.66812	.74601	28.5668	32.7092	28.71	32.58
OAT + KURKUMIN	5	30.8020	1.06666	.47703	29.4776	32.1264	29.49	32.36
Total	20	30.4760	1.34713	.30123	29.8455	31.1065	27.84	32.58

Test of Homogeneity of Variances

VDR_I

Levene Statistic	df1	df2	Sig.
.912	3	16	.457

ANOVA

VDR_I

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.065	3	.688	.340	.797
Within Groups	32.416	16	2.026		
Total	34.480	19			

Oneway

Descriptives

VDR_II

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					PLASEBO	5		
OAT	5	21.9280	1.39225	.62263	20.1993	23.6567	20.36	23.76
KURKUMIN	5	22.3060	.80258	.35892	21.3095	23.3025	21.63	23.67
OAT + KURKUMIN	5	21.5520	1.83160	.81912	19.2778	23.8262	19.86	23.61
Total	20	21.7855	1.31962	.29507	21.1679	22.4031	19.65	23.76

Test of Homogeneity of Variances

VDR_II

Levene Statistic	df1	df2	Sig.
3.363	3	16	.045

ANOVA

VDR_II

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.651	3	.884	.465	.711
Within Groups	30.435	16	1.902		
Total	33.086	19			

Oneway

Descriptives

VDR_III

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					PLASEBO	5		
OAT	5	28.7660	.91942	.41118	27.6244	29.9076	27.84	30.21
KURKUMIN	5	26.7440	.43558	.19480	26.2032	27.2848	26.12	27.31
OAT + KURKUMIN	5	31.3580	1.43648	.64241	29.5744	33.1416	29.55	33.11
Total	20	26.1215	5.37323	1.20149	23.6068	28.6362	17.05	33.11

Test of Homogeneity of Variances

VDR_III

Levene Statistic	df1	df2	Sig.
4.335	3	16	.020

ANOVA

VDR_III

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	535.557	3	178.519	219.651	.000
Within Groups	13.004	16	.813		
Total	548.560	19			

Multiple Comparisons

Dependent Variable: VDR_III

	(I) KELOMPOK	(J) KELOMPOK	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Bonferroni	PLASEBO	OAT	-11.14800*	.57017	.000	-12.8633	-9.4327
		KURKUMIN	-9.12600*	.57017	.000	-10.8413	-7.4107
		OAT + KURKUMIN	-13.74000*	.57017	.000	-15.4553	-12.0247
	OAT	PLASEBO	11.14800*	.57017	.000	9.4327	12.8633
		KURKUMIN	2.02200*	.57017	.016	.3067	3.7373
		OAT + KURKUMIN	-2.59200*	.57017	.002	-4.3073	-.8767
	KURKUMIN	PLASEBO	9.12600*	.57017	.000	7.4107	10.8413
		OAT	-2.02200*	.57017	.016	-3.7373	-.3067
		OAT + KURKUMIN	-4.61400*	.57017	.000	-6.3293	-2.8987
	OAT + KURKUMIN	PLASEBO	13.74000*	.57017	.000	12.0247	15.4553
		OAT	2.59200*	.57017	.002	.8767	4.3073
		KURKUMIN	4.61400*	.57017	.000	2.8987	6.3293
Tamhane	PLASEBO	OAT	-11.14800*	.44671	.000	-12.9509	-9.3451
		KURKUMIN	-9.12600*	.26159	.000	-10.0355	-8.2165
		OAT + KURKUMIN	-13.74000*	.66572	.000	-16.6742	-10.8058
	OAT	PLASEBO	11.14800*	.44671	.000	9.3451	12.9509
		KURKUMIN	2.02200*	.45499	.029	.2339	3.8101
		OAT + KURKUMIN	-2.59200	.76273	.070	-5.3811	.1971
	KURKUMIN	PLASEBO	9.12600*	.26159	.000	8.2165	10.0355
		OAT	-2.02200*	.45499	.029	-3.8101	-.2339
		OAT + KURKUMIN	-4.61400*	.67130	.007	-7.5203	-1.7077
	OAT + KURKUMIN	PLASEBO	13.74000*	.66572	.000	10.8058	16.6742
		OAT	2.59200	.76273	.070	-.1971	5.3811
		KURKUMIN	4.61400*	.67130	.007	1.7077	7.5203

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