

DAFTAR PUSTAKA

- Aditya, G. *et al.* (2022) 'Correlation Of Surface Roughness And Friction Resistance In Orthodontics', *ODONTO Dental Journal Dental Journal*, 9(1), pp. 110–118.
- Ahumada, M. del C. *et al.* (2003) 'Evaluation and comparison of lactobacilli characteristics in the mouths of patients with or without cavities.', *Journal of oral science*, 45(1), pp. 1–9. doi: 10.2334/josnurd.45.1.
- Anhoury, P. *et al.* (2002) 'Microbial Profile on Metallic and Ceramic Bracket Materials', *Angle Orthodontist*, 72(4), pp. 338–343. doi: 10.1043/0003-3219(2002)072<0338:MPOMAC>2.0.CO;2.
- Ardani, I. G. A. W. *et al.* (2017) *Pengantar ilmu ortodonti II*. Edited by E. R. Winoto. Surabaya: Airlangga University Press.
- Ardhana, W. (2013) 'Identifikasi Perawatan Ortodontik Spesialistik dan Umum', *Majalah Kedokteran Gigi Indonesia*, 20(1), p. 1. doi: 10.22146/majkedgiind.8193.
- Bacela, J. *et al.* (2020) 'Functional coatings for orthodontic archwires-A review', *Materials*, 13(15). doi: 10.3390/MA13153257.
- Badet, C. and Thebaud, N. B. (2008) 'Ecology of Lactobacilli in the Oral Cavity: A Review of Literature', *The Open Microbiology Journal*, 2(1), pp. 38–48. doi: 10.2174/1874285800802010038.
- Brusca, M. I. *et al.* (2007) 'Influence of different orthodontic brackets on adherence of microorganisms in vitro', *Angle Orthodontist*, 77(2), pp. 331–336. doi: 10.2319/0003-3219(2007)077[0331:IODOBO]2.0.CO;2.

- Busman, Edrizal *and* Utami, dwi widya panggih (2020) ‘Uji Efektivitas Ekstrak Buah Anggur Hijau (*Vitis Vinivera* L) Terhadap Daya Hambat Laju Pertumbuhan Bakteri *Streptococcus Mutans* Dan *Lactobacillus Acidophilus*’, *Lembaga Penelitian dan Penerbitan Hasil Penelitian Ensiklopedia P*, 2(2), pp. 157–171.
- Byun, R. *et al.* (2004) ‘Quantitative analysis of diverse *Lactobacillus* species present in advanced dental caries’, *Journal of Clinical Microbiology*, 42(7), pp. 3128–3136. doi: 10.1128/JCM.42.7.3128-3136.2004.
- Cobourne, M. *and* DiBiase, A. (2016) *Handbook Of Orthodontics*. 2nd editio. Elsevier Ltd.
- Cohen, L., Manion, L. *and* Morrison, K. (2007) *Research Methods in Education*. New York: Routledge.
- Costa Lima, K. C. *et al.* (2019) ‘Comparative analysis of microorganism adhesion on coated, partially coated, *and* uncoated orthodontic archwires: A prospective clinical study’, *American Journal of Orthodontics and Dentofacial Orthopedics*, 156(5), pp. 611–616. doi: 10.1016/j.ajodo.2018.11.014.
- Dokku, A. *et al.* (2018) ‘Surface *and* Mechanical Properties of Different Coated Orthodontic Archwires’, *Journal of Indian Orthodontic Society*, 52(4), pp. 238–242. doi: 10.4103/jios.jios_241_17.
- Elayyan, F., Silikas, N. *and* Bearn, D. (2010) ‘Mechanical properties of coated superelastic archwires in conventional *and* self-ligating orthodontic brackets’, *American Journal of Orthodontics and Dentofacial*

- Orthopedics*. American Association of Orthodontists, 137(2), pp. 213–217.
doi: 10.1016/j.ajodo.2008.01.026.
- Eliades, T., Eliades, G. and Brantley, W. A. (1995) ‘Microbial attachment on orthodontic appliances: I. Wettability and early pellicle formation on bracket materials’, *American Journal of Orthodontics and Dentofacial Orthopedics*, 108(4), pp. 351–360. doi: 10.1016/S0889-5406(95)70032-3.
- Hakim, R. fanani, Fakhrurazi and Editia, A. (2019) ‘Pengaruh Air Perasan Jeruk Nipis (*Citrus Aurantifolia*) Terhadap Pertumbuhan Bakteri *Lactobacillus Acidophilus*’, *Journal Of Syiah Kuala Dentistry Society*, 4(2), pp. 26–31.
- Hasipek, S., Senisik, N. E. and Çetin, E. S. (2019) ‘An Examination of Bacterial Colonisation on Nickel-Titanium Arch-wires with Different Surface Properties’, *Journal of Clinical and Diagnostic Research*, (October 2016), pp. 1–6. doi: 10.7860/jcdr/2019/40377.12899.
- Jura, C. O., Tendean, L. E. N. and Anindita, P. S. (2015) ‘Jumlah Ion Kromium (Cr) dan Nikel (Ni) Kawat Ortodontik Stainless Steel Yang Terlepas Dalam Perendaman Saliva’, 3(2), pp. 2–5. doi: 10.35790/eg.3.2.2015.10577.
- Kannan, M. S., Nandhini, K. and Padmavati, R. (2020) ‘Brackets in orthodontics - review article’, *Eur J Mol Clin Med*, 7(2), pp. 6413–6422.
- Kao, C. T. et al. (2007) ‘The cytotoxicity of orthodontic metal bracket immersion media’, *European Journal of Orthodontics*, 29(2), pp. 198–203. doi: 10.1093/ejo/cjl083.
- Karamouzos, A., Athanasiou, A. E. and Papadopoulos, M. A. (1997) ‘Clinical

characteristics *and* properties of ceramic brackets: A comprehensive review Physical Properties *and* Clinical Characteristics of Ceramic Brackets: A', *American journal of orthodontics and dentofacial orthopedics*, (November 2020). doi: 10.1016/S0889-5406(97)70271-3.

Mahmud, H. (2011) *Metode Penelitian Pendidikan*. Bandung: pustaka setia.

Mhaske, A. R. *et al.* (2015) 'Antiadherent *and* antibacterial properties of stainless steel *and* NiTi orthodontic wires coated with silver against *Lactobacillus acidophilus*—an in vitro study', *Progress in Orthodontics*. *Progress in Orthodontics*, 16(1), pp. 0–5. doi: 10.1186/s40510-015-0110-0.

Mohammed, M. S. *and* AL-Juborri, S. (2020) 'The Influence of Wire Dimension, Type *and* Thickness of Different Coating Layer on Friction Forces of Aesthetic NiTi Arch Wires Orthodontic Skeletal Patterns View project Evaluation of load deflection, surface roughness *and* frictional forces of aesthetic n', *International Medical Journal*, 25(february), pp. 551–560.

Nanda, R. (2005) *Biomechanics and Esthetic Strategies in Clinical Othodontics*. Edited by P. Rudolph. St. Louis, Missouri: Elsevier Inc.

Nanda, R. S. *and* Tosun, Y. S. (2012) *Biomechanics in orthodontics principles and practice*, *The European Journal of Orthodontics*. Edited by L. C. bywaters. Hanover Park: Quintessence Publishing Co, Inc. doi: 10.1093/ejo/cjr131.

Proffit, W. R. (2019) *Biomechaniscs, mechanic, and contemporary orthodontic appliance*. In: *Contemporary Orthodontic*. 6th edn.

Rahmi, C. S. R. (2021) 'Carbohydrate Test Reaction (Molisch Reaction)', *syiah*

kuala university.

- Raju, A. S. *et al.* (2013) ‘An in vivo Study on Bacterial Colonization with Metal, Ceramic and Self-ligating Brackets: A Scanning Electron Microscopy Study’, *The Journal of Indian Orthodontic Society*, 47, pp. 88–96. doi: 10.5005/jp-journals-10021-1135.
- Rani, M. . (2003) *Removable Orthodontic Appliances*. second edi. chennai: All India Publishers & Distributors, Regd.
- Saloom, H. F., Mohammed-Salih, H. S. and Rasheed, S. F. (2013) ‘The influence of different types of fixed orthodontic appliance on the growth and adherence of microorganisms (in vitro study)’, *Journal of Clinical and Experimental Dentistry*, 5(1), pp. 36–41. doi: 10.4317/jced.50988.
- Samaranayake, L. (2018) *Essential Microbiology for Dentistry*. fifth edit, *American Speech*. fifth edit. edinburgh: Elsevier Ltd. doi: 10.2307/486972.
- Satria Darwis, R., Endro Wahyudi, H. and Kartika, W. (2018) ‘Pengaruh Perawatan Ortodonti Dengan Beberapa Jenis Alat Ortodonti Terhadap Perubahan PH Dan Volume Saliva’, *Medika Kartika Jurnal Kedokteran dan Kesehatan*, 1(Volume 1 No 2), pp. 126–133. doi: 10.35990/mk.v1n2.p126-133.
- Sianiwati Goenharto and Sjafei, A. (2005) ‘Breket titanium’, *European University Institute*, 38(2), pp. 120–123.
- Siregar, E. (1996) ‘Faktor-faktor yang Berperan dalam Rekatan antara Braket dengan Enamel Gigi (Studi Pustaka)’, *Jurnal Kedokteran Gigi Universitas Indonesia*, 3(3), pp. 67–71.

- Srinivas, D., Mital, B. K. and Garg, S. K. (1990) 'Utilization of sugars by Lactobacillus acidophilus strains', *International Journal of Food Microbiology*, 10(1), pp. 51–57. doi: 10.1016/0168-1605(90)90007-R.
- Sugiyono (2012) *Statistika Untuk penelitian*. Bandung: alfabeta.
- Suwelo, I. S. (1992) *Karies Gigi Pada Anak dengan Berbagai Faktor Etiologi: Kajian Pada Anak Usia Prasekolah*. Jakarta: EGC.
- Tuti, A. (2017) 'Komplikasi dan resiko yang berhubungan dengan perawatan ortodonti', *J Ilmiah Widya*, 4(1), pp. 256–261.
- Ulhaq, A. et al. (2017) 'Alignment efficiency and esthetic performance of 4 coated nickel-titanium archwires in orthodontic patients over 8 weeks: A multicenter randomized clinical trial', *American Journal of Orthodontics and Dentofacial Orthopedics*. American Association of Orthodontists, 152(6), pp. 744–752. doi: 10.1016/j.ajodo.2017.07.014.

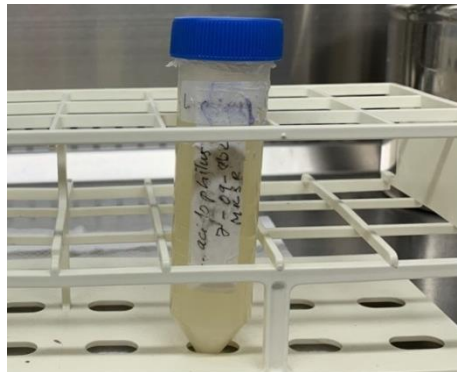
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LAMPIRAN



Gambar 1: alat dan bahan penelitian: cawan petri, mosquito, *ligature cutter plier*, *hard cutter plier*, *bracket holder* braket metal, braket *ceramic*, *coated NiTi archwire*, *uncoated NiTi archwire*, *ligature wire*



Gambar 2. Isolat *Lactobacillus Acidophilus* MRS Broth



Gambar 3. *Microplate*



Gambar 4. Autoclave



Gambar 5. Elisa Reader



Gambar 6. Inkubator



Gambar 7. *Shaker/ vibrator*



Gambar 8. *Micropipette, multichannel pipette, tip dan timer digital*



Gambar 9. *Saliva buatan dan Sukrosa 20%*



Gambar 10. larutan PBS, *crystal violet*, dan *absorbent paper*



Gambar 11. Pemotongan *Coated* dan *uncoated* NiTi *archwire* dengan ukuran yang sama, *Archwire* dimasukkan ke slot braket sesuai dengan kelompok yang telah ditentukan dan diligasi dengan *ligature wire* dengan 3 ulir



Gambar 12. Memasukkan braket-*archwire* masing-masing kelompok kedalam *microplate*, kemudian menambahkan saliva buatan, sukrosa, isolat *Lactobacillus Acidophilus*.



Gambar 13. Inkubasi *microplate* yang telah berisi sampel dalam suhu 37°C selama 24 jam, *dishake* sebesar 150 rpm



Gambar 14. Pewarnaan dengan *crystal violet*, inkubasi pada suhu 37°C selama 30 menit pada suasana gelap didalam incubator



Gambar 15. Pengujian menggunakan *elisa* reader.

Multiple Comparisons
Descriptives

lactobacillus_acidophilus

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
braket_metal_coated_archwire	10	,4896900	,26724903	,08451156	,2985116	,6808684	,15340	1,12400
braket_metal_uncoated_archwire	10	,3072200	,18097103	,05722806	,1777611	,4366789	,14230	,59450
braket_keramik_uncoated_archwire	10	,6317500	,23922142	,07564846	,4606213	,8028787	,36150	1,10200
braket_keramik_coated_archwire	10	,7160700	,39907127	,12619742	,4305916	1,0015484	,24120	1,31180
Total	40	,5361825	,31405929	,04965713	,4357415	,6366235	,14230	1,31180

ANOVA

lactobacillus_acidophilus

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,961	3	,320	3,995	,015
Within Groups	2,886	36	,080		
Total	3,847	39			

Dependent Variable: lactobacillus_acidophilus

Tukey HSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
braket_metal_coated_archwire	braket_metal_uncoated_archwire	,18247000	,12662096	,483	-,1585490	,5234890
	braket_keramik_uncoated_archwire	-,14206000	,12662096	,679	-,4830790	,1989590
	braket_keramik_coated_archwire	-,22638000	,12662096	,296	-,5673990	,1146390
braket_metal_uncoated_archwire	braket_metal_coated_archwire	-,18247000	,12662096	,483	-,5234890	,1585490
	braket_keramik_uncoated_archwire	-,32453000	,12662096	,067	-,6655490	,0164890
	braket_keramik_coated_archwire	-,40885000*	,12662096	,014	-,7498690	,0678310
braket_keramik_uncoated_archwire	braket_metal_coated_archwire	,14206000	,12662096	,679	-,1989590	,4830790
	braket_metal_uncoated_archwire	,32453000	,12662096	,067	-,0164890	,6655490
	braket_keramik_coated_archwire	-,08432000	,12662096	,909	-,4253390	,2566990
braket_keramik_coated_archwire	braket_metal_coated_archwire	,22638000	,12662096	,296	-,1146390	,5673990
	braket_metal_uncoated_archwire	,40885000*	,12662096	,014	-,0678310	,7498690
	braket_keramik_uncoated_archwire	,08432000	,12662096	,909	-,2566990	,4253390

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