

Effect of Disinfection Technique of Spraying and Soaking *Peronema canescens* Jack 1% on Changes in Alginate Dimensions

Okmes Fadriyanti,¹ Widyawati,² Hamna Marwi³

¹Department of Prosthodontics, Faculty of Dentistry, Universitas Baiturrahmah, Padang, Sumatera Barat, Indonesia

²Department of Dental Conservative, Faculty of Dentistry, Universitas Baiturrahmah, Padang, Sumatera Barat, Indonesia

³Department of Prosthodontics, Faculty of Dentistry, Universitas Baiturrahmah, Padang, Sumatera Barat, Indonesia

Corresponding Author: okmesfadriyanti@fkg.unbrah.ac.id

ARTICLE INFO : Received, June 21, 2022; Revised, August 21, 2023; Accepted, October 25, 2023; Published, December 20, 2023
ORCID : Fadriyanti O ([0009-0001-7109-0395](https://orcid.org/0009-0001-7109-0395)) Widyawati ([0000-0002-6631-7428](https://orcid.org/0000-0002-6631-7428)); Marwi H ([0009-0009-3338-1501](https://orcid.org/0009-0009-3338-1501))
DOI : [10.24815/jds.v8i2.34002](https://doi.org/10.24815/jds.v8i2.34002)

ABSTRACT

Background: Alginate prints can be a medium of transmission that has the potential for cross infection. Prevention of cross infection can be done by spraying and soaking disinfection, alginate molds in contact with water can cause the material to expand. Sungkai leaves (*Peronema canescens jack*) which contain antibacterials have the potential to be a deinfestation agent. **Objective:** This research is to determine the effect of spraying and soaking disinfection techniques with 1% sungkai leaf extract on changes in the dimensions of alginate molds. **Methods:** Making alginate mold samples totaling 72 samples, consisting of 6 groups and measured within 5, 10, 15 minutes. Test changes in dimensions of the alginate mold using digital calipers and analyzed using the Wilcoxon test followed by the Mann-Whitney test. **Results:** there was no effect of spraying with 1% sungkai leaf extract (*Peronema canescens jack*) on changes in the dimensions of the alginate mold within 10 minutes ($p>0.05$) and there was an effect of soaking within 10 minutes on the dimensions of the alginate mold. **Conclusion:** disinfection by spraying and soaking with 1% sungkai leaf extract against changes in the dimensions of the alginate mold still complies with ADA specifications at the clinical tolerance limit below 0.5%.

Keywords: Spraying, soaking, sungkai leaf extract, dimensional changes, alginate.

ABSTRAK

Latar belakang: Hasil cetakan alginat dapat menjadi salah satu media penularan yang berpotensi terjadinya infeksi silang. Pencegahan infeksi silang dapat dilakukan desinfeksi penyemprotan dan perendaman, cetakan alginat yang berkontak dengan air dapat menyebabkan bahan mengembang. Daun sungkai (*Peronema canescens jack*) yang mengandung antibakteri berpotensi sebagai agen deinfeksi. **Tujuan:** Penelitian ini adalah mengetahui pengaruh teknik desinfeksi penyemprotan dan perendaman dengan ekstrak daun sungkai 1% terhadap perubahan dimensi cetakan alginat. **Metode:** Pembuatan sampel cetakan alginat berjumlah 72 sampel, terdiri dari 6 kelompok dan diukur dalam waktu 5, 10, 15 menit. Uji perubahan dimensi cetakan alginat dengan menggunakan kaliper digital dan dianalisis dengan uji Wilcoxon dilanjutkan dengan uji Mann-Whitney. **Hasil:** tidak ada pengaruh penyemprotan dengan ekstrak daun sungkai (*Peronema canescens jack*) 1% terhadap perubahan dimensi cetakan alginat dalam waktu 10 menit ($p>0.05$) dan ada pengaruh perendaman dalam waktu 10 menit terhadap dimensi cetakan alginat. **Kesimpulan:** desinfeksi penyemprotan dan perendaman dengan ekstrak daun sungkai 1% terhadap perubahan dimensi cetakan alginat masih sesuai spesifikasi ADA pada batas toleransi klinik dibawah 0.5%.

Kata Kunci : Penyemprotan, perendaman, ekstrak daun sungkai, perubahan dimensi, alginat.

1. Introduction

Missing teeth is one of the changes in the tissues in the oral cavity. To overcome this, missing teeth can be replaced by making dentures.¹ The stage of making dentures begins with an anatomical impression procedure using an *irreversible hydrocolloid* (alginate) impression material. The advantages of using this impression material include that it does not require a lot of equipment, is easy to manipulate, accurate, relatively inexpensive and comfortable for the patient, but the disadvantages of alginate impressions are that they have imbibition and syneresis properties.² Imbibition is the absorption of water when in contact with water so that it expands

more easily and shrinkage is easy because it is stored in open air and water evaporates when there is an increase in temperature (syneresis). This causes the alginate impression to change dimensions.³

Alginate impressions from the patient's mouth are one of the transmission media that have the potential for cross-infection because pathogenic microorganisms in saliva, blood and pus will stick to the impression material and trigger disease transmission.⁴ *America Dental Association* (ADA) recommends that the alginate impression should be washed with running water for approximately 15 seconds to remove saliva, debris and blood on the impression material, then disinfect the alginate impression.⁷ The disinfection method recommended by the ADA is to use a spraying and immersion technique.⁶ The spraying technique showed the same antimicrobial activity as immersion although it did not significantly affect the change in the dimensions of the alginate impression.⁷ Disinfectants can be chemical or natural. One of the chemicals used is sodium hypochlorite, chlorhexidine, and trisodium phosphate. According to *Environmental Protection* (EPA), 0.5% sodium hypochlorite has been tested to be efficient against broad-spectrum microorganisms but has drawbacks such as an unpleasant odor and can irritate the skin and even the eyes.⁸

Sungkai plant (*Peronema canescens* Jack) is traditionally used as a cold medicine, antiseptic in the mouth, worming medicine and can also be used as a fever reducer.⁹ Research result by Ibrahim dan Kuncoro (2012) showed that the methanol extract of *P. canescens* at a concentration of 1% was effective in killing the bacteria *Bacillus subtilis* and *Staphylococcus aureus* because sungkai leaves have bioactive compounds of flavonoids, alkaloids, terpenoids and tannins.¹⁰ ADA recommends that the alginate impression disinfectant by immersion maximum of 10 minutes, if more then there can be changes in the dimensions of the alginate impression because alginate has imbibition properties. Dimensional changes can be affected by the contact of the impression material with water and air. The ideal time of impression disinfection is as short as possible but it must be effective and avoid changes and damage to the surface details of the alginate impression.¹¹

2. Material and Methods

2.1. Procedure of Sungkai Leaf Extract

Maceration of sungkai leaves in 5L 80% ethanol for 24 hours and then stirring every 4 hours. After that, it was decanted and filtered, the residue was reprocessed in the same way using new 80% ethanol for 48 hours. The filtrate obtained was collected and evaporated with a rotary vacuum evaporator until a solid extract was obtained. Subsequently, it was heated at 45°C to remove the remaining 80% ethanol and stored in a dark bottle and tightly closed. Dilution of thick extract of sungkai leaf: Diluted with PBS (Phosphate Buffered Saline) solution (1 mg : 10 mg) then vibrated as much as 25 ml to get a concentration of 1%.¹²

2.2. Procedure Of Alginate Impression

Alginate samples were made by preparing an edentulous master model using a stock tray non-angled *maxillary*, size M. Alginate powder was measured using a measuring spoon and water was measured using a measuring cup, a ratio of 16.8 g : 40 ml. Put the powder into the water that has been placed in the rubber bowl, do a figure eight movement quickly and press it on the rubber bowl wall using a spatula until homogeneous for 45 seconds. The result of mixing the alginate is placed on a stock tray with a size M which has been adjusted and then printed on the master model and waited for ± 2 minutes to set, then removed from the model.¹² The manufacture of a *tripod costume-made* requires wood to match the size of the M-sized non-angled maxillary stock tray anatomical and 3 metal pins (Fig 1A).¹³

2.3. Alginate Impression Preparation

The alginate impression was washed with running water for 15 seconds. Mark the alginate impression using a *tripod*, measure the vertical and horizontal dimensions before applying it using a digital caliper with an accuracy of 0.01 mm. Spraying ± 2 ml of 1% sungkai leaf extract solution until it hits the entire surface of the alginate and the distance between the spray and the alginate is ± 5 cm. Then, wrapped with a tissue that has been moistened with a disinfectant solution and stored in a closed container for 5, 10, and 15 minutes. Then rinsed again and gently tapped to

remove excess water. Measurement of vertical dimensions (point A - point B) and horizontal dimensions (point B - point C) using digital calipers with an accuracy of 0.01 mm.¹⁴

The alginate impression was washed with running water for 15 seconds. Mark the alginate impression using a tripod, measure the vertical and horizontal dimensions before applying it using a digital caliper with an accuracy of 0.01 mm. Immersion using 1% sungkai leaf extract solution until the entire surface of the alginate impression is submerged in the solution and stored for 5, 10, and 15 minutes. Then rinsed again and gently tapped to remove excess water. Measurement of vertical dimensions.

2.4. Measurement Of Dimension Change Alginate Impression

Measuring the distance from point A to point B before and after being treated is also called a vertical plane line. Measuring the distance from point B to point C before and after being treated is also called a horizontal plane line (Fig. 1B).¹³

2.5. Data analysis

The descriptive analysis describes the tabulation of research data by ranking the surface of the alginate mold from each research result.

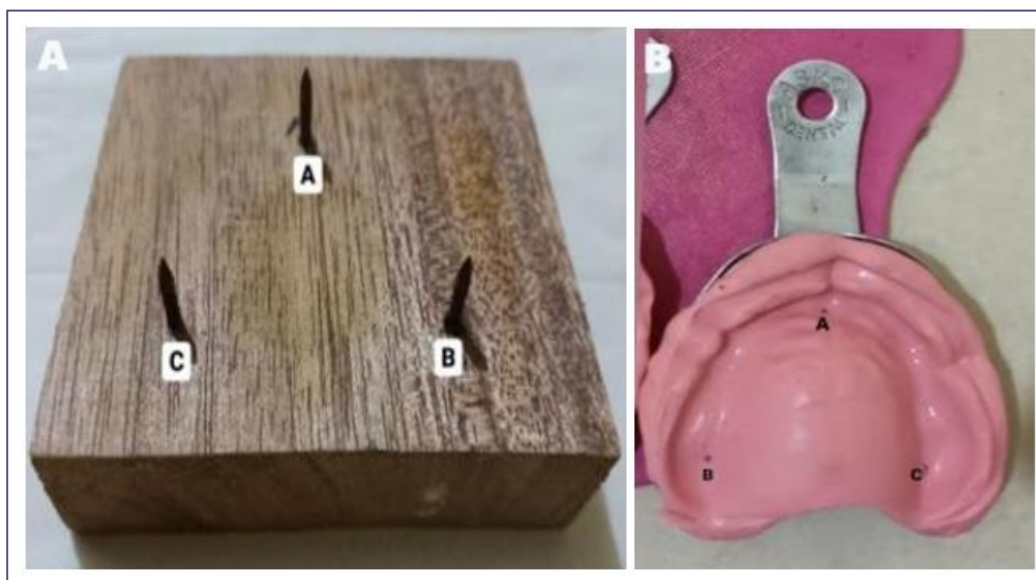


Figure 1. (A) Tripod Costume Made. Point A is a point located in the anterior region of the *maxilla*. Point B is a point located in the right posterior region of the *maxilla*. Point C is a point located in the left posterior region of the *maxilla*. (B) Dotted Alginate Impression using a costume-made tripod (point A - point B) and horizontal dimensions (point B - point C) using digital calipers with an accuracy of 0.01 mm.¹⁴

3. Result and Discussion

The results of the 36 spraying samples were univariate test so that the standard deviation and mean of each group were obtained as follows (Table 1). The results presented in Table 1 show that the measurement of the vertical dimensions on line AB before and after being sprayed with 1% sungkai leaf extract, the negative group and the negative group showed the largest value at 15 minutes was 43.9 mm with a standard deviation of 0.000 while in 5 and 10 minutes is 43.8 mm with a standard deviation of 0.000.

Table 1. Measurement results of the meanvalue and standard deviation of the vertical dimension with spraying techniques on alginate impression

Sample	Change Of Vertical Dimension at point A - point B (mm)									
	Before	Control (+)			Control (-)			Spraying grup with extract		
		5 Min	10 Min	15 Min	5 Min	10 Min	15 Min	5 Min	10 Min	15 Min
1	43,8	43,8	43,8	43,9	43,8	43,8	43,9	43,8	43,8	43,9
2	43,8	43,8	43,8	43,9	43,8	43,8	43,9	43,8	43,8	43,9
3	43,8	43,8	43,8	43,9	43,8	43,8	43,9	43,8	43,8	43,9
4	43,8	43,8	43,8	43,9	43,8	43,8	43,9	43,8	43,8	43,9
X±SD (mm)	43,8±0,000	43,8±0,000	43,8±0,000	43,9±0,000	43,8±0,000	43,8±0,000	43,9±0,000	43,8±0,000	43,8±0,000	43,9±0,000

Based on the results in the Table , it was obtained that for 5 and 10 minutes there wasno effect of spraying with 1% sungkai leafextract on changes in the vertical dimensions of alginate impressions but there was an effect of spraying with 1% sungkai leaf extract on changes in the vertical dimensions of alginate impressions. This is in accordance with the recommendation of the American Dental Association (ADA) that disinfection of alginate impression material for 10 minutes.¹⁵ Dimensional changes occur due to the alginate structure in the form of fibers with water filling the capillary space, if there is only a slight change in dimensions, it seems to berelated to the length of time. relatively short storage and spraying time.¹⁶ Muzaffar et al (2011) concluded that there was absorption in the alginate impressio when in contact with the disinfectant material for a certain period of time, causing expansion, in which the alginate contained ions such as sodium, sulfate, phosphate as osmotic potential.¹⁷ Saito et al (1998)) also said thatthe osmotic pressure between the alginate gels expanded (swelled) when immersed in a disinfectant solution.¹⁸

The results of spraying the positive control group, 1% sungkai leaf extract, the negative control were carried out by univariate tests so that the standard deviation and mean of each group were as followsm (Table 2). The results presented in Table 2 show that the measurement of the horizontal dimension on the BC line before and after being sprayed on the positive control group at 5 and 10 minutes obtained a mean value of 45.3 mm with a standard deviation of 0.000 and at 15 minutes it was 45.5 mm with a standard deviation of 0.000. While the 5 and 10 minutes spraying of 1% sungkai leaf extract group and negative control obtained a value of 45.3 mm with a standard deviation of 0.000 and at 15 minutes the mean value was 45.4 mm with a standard deviation of 0.000.

Table 2. Results of measurement of average value and standard deviation of horizontal dimensions with spraying techniques on alginate impressions

Sample	Change Of Horizontal Dimension at point A - point B (mm)									
	Before	Control (+)			Control (-)			Spraying grup with extract		
		5 Min	10 Min	15 Min	5 Min	10 Min	15 Min	5 Min	10 Min	15 Min
1	45,3	45,3	45,4	45,5	45,3	45,3	45,4	45,3	45,3	45,4
2	45,3	45,3	45,4	45,5	45,3	45,3	45,4	45,3	45,3	45,4
3	45,3	45,3	45,4	45,5	45,3	45,3	45,4	45,3	45,3	45,4
4	45,3	45,3	45,4	45,5	45,3	45,3	45,4	45,3	45,3	45,4
X±SD (mm)	45,3±0,000	45,3±0,000	45,4±0,000	45,5±0,000	45,3±0,000	45,3±0,000	45,4±0,000	45,3±0,000	45,3±0,000	45,4±0,000

Based on the results in Table 4, it was obtained that for 5 and 10 minutes there was no effect of spraying with 1% sungkai leafextract on changes in the horizontal dimensions of the alginate impression but there was an effect of spraying with 1% sungkai leaf extract on changes in the horizontal dimensions of alginate impressions. This is in accordance with the recommendation of the *American Dental Association* (ADA) that the administration of disinfectant for 10 minutes on alginate impression materials. Dimensional changes occur due to the alginate structure in the form of fibers with water filling the capillary space, if there is only a slight change in dimensions it seems to be related to the relatively short duration of storage and spraying.¹⁶

The results showed that the use of natural ingredients, namely 1% sungkai leaf extract, could replace chemical disinfectant solutions because the average distance was almost the same, especially in spraying techniques both in the vertical and horizontal dimensions with the best spraying time of 5 to 10 minutes. This 1% sungkai leaf extract can be used as an alternative to

disinfectants, in addition to the fact that sungkai leaf has a good disinfection effect, sungkai leaf also does not cause side effects in use as in artificial chemicals. This material can also be easily found anywhere because it is easy to grow in the yard.

The results of the study of 36 immersion samples were carried out by univariate tests so that the standard deviation and mean of each group were as follows (Table 3). The results presented in Table 3 show that the measurement of the vertical dimensions on the AB line before and after immersion with 1% sungkai leaf extract and negative control showed that the largest mean value in the 15-minute group was 44.1 mm while in the 5-minute group it was 44.1 mm. 43.9 mm and in the 10 minute group it was 44 mm with a standard deviation of 0.000 each. While in the positive control group, the mean value at 15 minutes was 44.2 mm, 10 minutes was 44.1 mm and at 5 minutes was 44 mm with a standard deviation of 0.000 respectively.

Table 3. Measurement results of the mean value and standard deviation of the vertical dimension with immersion techniques on alginate impression

Sample	Change Of Vertical Dimension at point A - point B (mm)									
	Before	Control (+)			Control (-)			Immersion grup with extract		
		5 Min	10 Min	15 Min	5 Min	10 Min	15 Min	5 Min	10 Min	15 Min
1	43,8	44	44,1	44,2	43,9	44	44,1	43,9	44	44,1
2	43,8	44	44,1	44,2	43,9	44	44,1	43,9	44	44,1
3	43,8	44	44,1	44,2	43,9	44	44,1	43,9	44	44,1
4	43,8	44	44,1	44,2	43,9	44	44,1	43,9	44	44,1
X±SD (mm)	43,8±0,00 0	44±0,00 0	44,1±0,00 0	44,2±0,00 0	43,9±0,00 0	44±0,00 0	44,1±0,00 0	43,9±0,00 0	44±0,00 0	44,1±0,00 0

Based on the results in the Table , it is obtained that the measurement values for the vertical dimensions of alginate impressions before and after immersion with 1% sungkai leaf extract for 5, 10 and 15 minutes respectively indicate that there is an effect of immersion with 1% sungkai leaf extract on changes in dimensions. vertical and horizontal alginate impressions, but still within the clinical tolerance limit, which is below 0.5%. This is in accordance with the theory that at the time of immersion disinfection an imbibition process occurs, namely the process of absorption of water on the surface of the alginate which causes the development of alginate from its original size before the immersion process is carried out.²

Sungkai leaves contain fenol which when in contact with alginate impression material will cause an esterification reaction, namely the reaction of ester formation by binding to carboxylic acid contained in the chemical structure of alginate impression material. The esterification reaction will produce H₂O content. This is in line with the research of Amelia *et al.*, (2017) Alginate has properties that are easy to imbibe so that when avocado leaf extract containing phenolic compounds comes into contact with alginate it can cause expansion of the alginate impression.⁶

The results of the immersion of the positive control group, 1% sungkai leaf extract, the negative control were carried out univariate tests so that the standard deviation and mean of each group were as follows (Table 4). The results presented in Table 4 show that the measurement of the horizontal dimension on the BC line before and after immersion with sungkai leaf extract, the largest positive control and negative control at 15 minutes was 45.8 mm while the average value at 10 minutes was 45, 4 mm and at 5 minutes it was 45.3 mm with a standard deviation of 0.000.

Table 4. Measurement results of the mean value and standard deviation of the horizontal dimension with immersion techniques on alginate impression

Sample	Change Of Horizontal Dimension at point A - point B (mm)									
	Before	Control (+)			Control (-)			Immersion grup with extract		
		5 Min	10 Min	15 Min	5 Min	10 Min	15 Min	5 Min	10 Min	15 Min
1	45,3	45,5	45,6	45,8	45,4	45,6	45,8	45,4	45,6	45,8
2	45,3	45,5	45,6	45,8	45,4	45,6	45,8	45,4	45,6	45,8
3	45,3	45,5	45,6	45,8	45,4	45,6	45,8	45,4	45,6	45,8
4	45,3	45,5	45,6	45,8	45,4	45,6	45,8	45,4	45,6	45,8
X±SD (mm)	45,3±0,000	45,5±0,000	45,6±0,000	45,8±0,000	45,4±0,000	45,6±0,000	45,8±0,000	45,4±0,000	45,6±0,000	45,8±0,000

Based on the results in Table 8, the measurement values for the horizontal dimensions of alginate impressions before and after immersion with 1% sungkai leaf extract for 5, 10 and 15

minutes respectively indicate that there is an effect of immersion with 1% sungkai leaf extract on changes in the horizontal dimensions of alginate impressions, but still within the limits of clinical tolerance. *American Dental Association (ADA)* specification no.18 impression material should not show a change of more than 0.5% from the initial shape as measured using a caliper. Changes in the dimensions of the alginate impression using the immersion technique are the result of imbibition because the alginate impression is in more contact with the disinfectant solution.⁸

The results of the study on the different effects of spraying and immersion with 1% sungkai leaf extract on changes in the dimensions of the alginate impression for 5, 10, and 15 minutes following (Table 5). Based on the Mann-Whitney non-parametric test, the vertical and horizontal dimensions of the measurements after being sprayed and immersion with 1% sungkai leaf extract at each time of 5, 10, and 15 minutes were obtained with p value = 0.029 ($p < 0, 05$), this means that the treatment tested, namely 1% sungkai leaf extract has different effects of spraying and immersion with 1% sungkai leaf extract on changes in alginate impression dimensions for 5, 10, and 15 minutes.

Table 5. Kruskal Wallis analyses of dimension changes of alginate impression dimensions

No	Variable Analysis	Technique	Times (Min)	N	* <i>p-value</i>
1	Vertical Dimension	Spraying-	5	4	0.029
		Immersion	10	4	0.029
			15	4	0.029
2	Horizontal Dimension	Spraying-	5	4	0.029
		Immersion	10	4	0.029
			15	4	0.029

* *Mann-Whitney test*

The results obtained from the Table show that there are differences in the effect of spraying and immersion with 1% sungkai leaf extract on changes in the dimensions of the alginate impression. In this study, the average measurement results in the immersion technique with 1% sungkai leaf extract has a higher value than the spraying technique, which means that the immersion technique has a greater influence on changes in dimensional stability than the spraying technique. This shows that disinfection by immersion can affect the dimensional accuracy of the alginate impression.¹⁹ Based on the theory, alginate has imbibition and syneresis properties that affect the disinfection process. At the time of disinfection with the immersion technique an imbibition process occurs, namely the process of absorption of water into the alginate impression which causes the alginate to expand from its original size before the immersion process is carried out.

The same is true for disinfection by spraying technique, but in this technique there is a balance between imbibition and syneresis. An imbibition process occurs when the disinfectant is sprayed on the alginate impressions, while the syneresis process occurs after the spraying process is carried out.¹⁹ The results of the alginate impression are left in the open air causing the syneresis process to occur, to prevent evaporation of water droplets onto the surface of the alginate impression excessively, it is necessary to coat the alginate impression using a wet tissue, so that the process of entering and leaving water particles into the alginate is balanced.¹⁹

4. Conclusion

Spraying and immersion disinfection with 1% sungkai leaf extract against changes in the dimensions of the alginate impression is still according to the ADA specifications at the clinical tolerance limit below 0.5%. Based on the results of the research conducted, it can be concluded that spraying and immersion disinfection with 1% sungkai leaf extract is recommended in the storage time of the alginate impression for 10 minutes.

5. References

1. Rahmayani, L., dan Idawani, M. 2013. Perilaku Pemakai Gigi Tiruan Terhadap Pemeliharaan Kebersihan Gigi Tiruan Lepas. *Jurnal PDGI*, 62(3), pp. 83-88
2. Anusavice, K. J., 2004. *Philips: Buku Ajar Ilmu Bahan Kedokteran Gigi Edisi 10*, Jakarta: EGC Penerbit Buku Kedokteran.
3. Sumantri, D., and Maulida, C. 2018. Inhibition Effect of Hydrocolloid Irreversible Alginate on

- Immersion Spray Using Aloe Vera Juice. *Intisari Sains Medis*, 9(3), pp. 24–29. doi: 10.15562/ism.v9i3.274.
4. Kustantiningtyastuti, D., Afwardi., dan Coryniken, S. 2016. Efek Imbibisi perendaman bahan cetak hydrocolloid irreversible alginate dalam larutan sodium hypochlorite. *Cakradonya Dental Journal*, 8(2), pp. 92–97.
 5. Lamiah, D., Parnaadji, R. R., dan Sumono, A. 2016. Pengaruh Desinfeksi dengan Teknik Spray Rebusan Daun Sirih Hijau (*Piper betle* L .) 35 % dan Sodium Hipoklorit (NaOCl) 0 , 5 % Pada Model Hasil Reproduksi Cetakan Alginat Terhadap Stabilitas Dimensi Effect of Disinfection with Spraying Technique 35 % B. *E-Jurnal Pustaka Kesehatan*, 3(3), pp. 3–8.
 6. Amelia, A. N., Suharti, N., dan Rahmi, E. 2017. Perbedaan Stabilitas Dimensi antara Cetakan Alginat yang diberi Desinfektan Ekstrak Daun Alpukat (*Persea americana* mill) dengan Natrium Hipoklorit. *Andalas Dental Journal*, 5(2), pp. 78–87. <https://doi.org/10.25077/adj.v5i2.73>
 7. Hasanah, N. Y., Arya, I. W., dan Rachmadi, P. 2014. Laporan Penelitian Efek Penyemprotan Desinfektan Larutan Daun Sirih 80 %. *Jurnal Kedokteran Gigi(Dentino)*, 11(1), pp. 65–69.
 8. Arini, N. K. D. P., Nurlitasari D. F., Puspaninghyun, P. N. 2019. Stabilitas Dimensi Hasil Cetakan Alginat Setelah Dilakukan Penyemprotan Infusa Rimpang Jahe Konsentrasi 30% Sebagai Desinfektan. *The 4th Bali Dental Science and Exhibition Balidence*, pp. 492-95.
 9. Yani, A.P., Putranto, A. M. H. 2014. Examination Of The Sungkai's Young Leaf Extract (*Peronema canescens jack*) As An Antipiretic, Immunity, Antiplasmodium And Teratogenity In Mice (Mus.Muculus). *International Journal of Science and Engineering*, 7(1), pp. 30–34.
 10. Ibrahim, A., dan Kuncoro, H. 2012. Identifikasi Metabolit Sekunder dan Aktivitas Antibakteri Ekstrak Daun Sungkai (*Peronema canescens jack.*) Terhadap Beberapa Bakteri Patogen. *Journal Of Tropical Pharmacy And Chemistry*, 2(1), pp. 8–18. doi: 10.25026/jtpc.v2i1.43.
 11. Ghaharamanloo A, Sadeghian A, Sograbik, Bidi A. 2009. A Microbiologic Investigation Following the Disinfection of Irreversible Hydrocolloid Materials Using the Spray Method. *CDA Journal* [serial online]; 37(7): 47-7. Available from <http://www.ncbi.nlm.nih.gov/pubmed/19653403>. Access Desember 22, 2010.
 12. Wirayuni, K. A., dan Juniawati, D. N. A. 2020. Teknik Desinfeksi Perendaman dan Penyemprotan Ekstrak Mengkudu (*Morinda Citrifolia Liin*), Terhadap Perubahan Stabilitas Dimensi Cetakan Alginat. *SONDE (Sound of Dentistry)*, 5(1), pp. 36–44. doi:10.28932/sod.v5i1.2440.
 13. Dewi, R. S., Kusumaningati, H., and Thalib, N. A. 2019. 12.5% Virgin Coconat as an Alginate Impression Material Desinfektan. *Journal of International Dental and Medical Reaseach*, 12(2), pp. 443-447.
 14. Shambhu, H., and Gujjari, A. 2010. A Study on the Effect on Surface Detail Reproduction of Alginate Impression. *Journal of Indian Prosthodontic Society*, 10: pp. 41-47.
 15. Machmud, E., Utama, M. D., Thalib, B., Damayanti, I., Jubhari, E. H., dan Waris, R. 2016. Efek Penyemprotan Desinfektan Kelopak Bunga Rosella Pada Cetakan Rahang Terhadap Perubahan Dimensi Hasil Cetakan. *Jurnal PanritaAbdi*, 1(1), pp. 54–61.
 16. Parimata, V. N., Rachmadi, P., dan Arya, I. W. 2014. Stabilitas Dimensi Hasil Cetakan Alginat setelah dilakukan Penyemprotan Indusa Daun Sirih (*Piper crocatum Ruiz dan Pav*) 50% Sebagai Desinfektan. *DENTINO Jurnal Kedokteran Gigi*, 2(1), pp. 74-78.
 17. Muzaffar, D., Ahsan, S. H., and Afaq, A. 2011. Dimensional Changes in Alginate Impression During Immersion in a Disinfectant Solution. *Journal of the Pakistan Medical Association*, 61(8), pp. 756–759.
 18. Saito S, Ichimaru T, and Araki Y. 1998. Factors Affecting Dimensional Instability of Alginate Impression During Immersion in the Fixing and Disinfectant Solutions. *JDent Material*. 4: pp. 294-300.
 19. Sari, D. F., Parnaadji, R. R., Sumono, A., Gigi, F. K. 2013. Pengaruh Teknik Desinfeksi dengan Berbagai Macam Larutan Desinfektan pada Hasil Cetakan Alginat Terhadap Stabilitas Dimensional (Effect of Disinfection Techniques with Various Disinfectant Solution on Alginate Impression Results for Dimensional Stability). *Jurnal Pustaka Kesehatan*, 1(1), p. 30

Authors Contribution

Contribution	Fadriyanti O	Widyawati	Marwi H
Concepts or ideas	√	√	√
Design	√	√	√
Definition of intellectual content	√		
Literature search	√	√	√
Experimental studies	√		
Data acquisition	√	√	
Data analysis	√	√	
Statistical analysis	√		√
Manuscript preparation	√		√
Manuscript editing	√	√	
Manuscript review	√	√	



JDS (Journal of Syiah Kuala Dentistry Society) is an Open Access Journal licensed under a Creative Commons Attribution-ShareAlike 4.0 International License. This license authorizes the utilization, replication, modification, distribution, and reproduction of the article in any medium or format, provided that due credit is given to the original Author (s) and the source, a link to the Creative Commons license is provided, and any alterations made to the article are duly indicated.

Citation Format: Fadriyanti O, Widyawati, Marwi H. Effect of disinfection technique of spraying and soaking *Peronema canescens* Jack 1% on changes in alginate dimensions. J Syiah Kuala Dent Soc. 2023; 8(2): 149-156.

Publisher's Note: The authors of this article assert that all claims made herein are exclusively their own and may not necessarily reflect the views of their respective affiliated institutions or those of the publisher, editors, and reviewers. The publisher does not provide any guarantee or endorsement for any product subject to evaluation in this article or any claim made by its manufacturer.