

DAFTAR PUSTAKA

- Ahmad, D., Boogaert, I V D., Miller, J., Presswell, R., Jouhara, H. (2018). Hydrophilic and hydrophobic materials and their applications. Energy sources, part a: recovery, utilization, and environmental effects, p: 2.
- Allan, N A., Walton, R E., Schaffer, M. (2001). Setting Time for Endodontic Sealer Under Clinical Usage and In Vitro Condition. *Journal of Endodontic*, USA 2001, 27(6), p: 421-423.
- Amelia, Y., Herawati., Pradopo, S. (2014). Daya antibakteri Penambahan Propolis pada Zinc Oxide Eugenol dan Zinc Oxide Terhadap Kuman Campur Gigi Molar Sulung Non Vital. *Dental Journal Majalah Kedokteran Gigi* 2014, 47(4), p: 199.
- Arifin, B., Sanusi, Ibrahim, S. (2018). Struktur , Bioaktivitas dan Antioksidan Flavonoid Structure, Bioactivity and Antioxidan of Flavonoid. *Jurnal Zarah* 2018, 6(1), p: 21.
- Ariani, N G A., Hadriyanto, W. 2013. Perawatan Ulang Saluran Akar Insisivus Lateralis Kiri Maksila Dengan Medikamen Kalsium Hidroksida-Chlorhexidine. *Majalah Kedokteran Gigi* 2013 20(1), p: 52-57.
- Averill, B A., Eldredge, P. 2012. *Principle of General Chemistry*. 1st Ed.
- Aziz, T., K N Cindo, R., Fresca, A. (2009). Pengaruh Pelarut Heksana dan Etanol, Volume Pelarut, dan Waktu Ekstraksi Terhadap Hasil Ekstraksi Minyak Kopi. *Jurnal Teknik Kimia* 2009, 16(1), p: 4
- Bachtiar, Z A. (2016). Perawatan Saluran Akar pada Gigi Permen Anak dengan Bahan Gutta Percha. *Jurnal PDGI* 2016, 65(2), p. 61;63-64.
- Bakkali, F., Avertebeck, S., Avertebeck, D., Idaomar, M. (2008). Biological Effects of Essential Oils – A review. *Food and Chemical Toxicology*, 46(2), p: 446-475.
- Brown, TL., LeMay, HE., Bursten, BE., Murphy, CJ., Woodward, PM., Stoltzfus, M. (2015). *Chemistry the central science pearson* 13th Edition. United State of America, Pearson, p: 61-62; 301; 452; 482 – 486; 685
- Camps, J., Pommel, L., Bukiet, F., Zbout, I. (2004). Influence Of The Powder/Liquid Ratio On The Properties Of Zinc Oxide–Eugenol-

- Based Root Canal Sealers. *Dental Materials* 2004, Elsevier, 20, p: 915 - 923.
- Cartika, H. (2016). *Kimia Farmasi. Modul Bahan Ajar Cetak Farmasi.* Kementerian Kesehatan Republik Indonesia, p: 21.
- Cavenago, B C., Pereira, T C., Duarte, M A H., Ordinola-Zapata, R., Marciano, M A. (2014). Influence of Powder to Water Ratio on Radiopacity, Setting time, pH, Calcium ion release and a micro-CT Volumetric Solubility of White Mineral Trioxide Aggregate. *International Endodontic Journal* 2013, 47, p: 123-124.
- Chang SW, Lee YK, Zhu Q, Shon WJ, Lee WC, Kum KY, Baek SH, Lee IB, Lim BS dan Bae KS. (2014). Comparison of the rheological properties of four root canal sealers. *International Journal of Oral Science* Vol. 7, p. 56, 60.
- Dewiyani, S. (2014). Perawatan Endodontik Pada Kasus Periodontitis Apikal Kronis. *PDGI Jurnal* 2014, 63(3), p: 99.
- Dhianawaty, D., Ruslin. (2015). Kandungan Total Polifenol dan Antioksidan dari Ekstrak Metanol Akar *Imperata cylindrica* (L) Beauv. (Alang-alang). Fakultas Farmasi, Universitas Halu Oleo, Kendari.
- Dubey S, (2016), Comparative Antimicrobial Efficacy of Herbal Alternatives (*Emblica officinalis*, *Psidium guajava*), MTAD, and 2.5% Sodium Hypochlorite Against *Enterococcus faecalis*: An in vitro study, Indore; Elsevier, p. 45-48.
- Earle, C. (2017). *Pinus densiflora* (アカマツ) description - The Gymnosperm Database. [online] Conifers.org. Available at: https://www.conifers.org/pi/Pinus_densiflora.php [Accessed 12 Apr. 2020].
- Epasinghe, D., Yiu, C., & Burrow, M. (2016). Effect of Flavonoids on Remineralization of Artificial Root Caries. *Australian Dental Journal*, 61(2), p: 196–202.
- Ersahan, S., Aydin, C. (2013). Solubility and Apical Sealing Characteristic of A New Calcium Silicate-Based Root Canal Sealer in Comparison to

- Calcium Hydroxide-, Methacrylate resin- and Epoxy Resin-Based Sealer. *Acta Odontologica Scandinavica*, 2013, 71, p: 857-862.
- Fadillah, H., Wijianto., B., Fahrurroji, A. (2014). Optimasi Sabun Cair Antibakteri Ekstrak Etanol Rimpang Jahe Merah (*Zingiber officinale Rosc. var. rubum*) Variasi Virgin Coconut Oil (VCO) dan Kalium Hidroksida (KOH) Menggunakan *Simplex Lattice Design*. Fakultas Kedokteran, Universitas Tanjungpura, Pontianak, p: 4
- Faria-Junior, N B., Massi, S., Croti, Hugo R., Guitierrez, Jose C R., Dametto, Fablo R., Vaz, Luis G. (2010). Comparative Assessment of the Flow Rate of Root Caal Sealers. *Rev. Odonto Cienc* 2010, 25(2), p: 171-172.
- Fatmwati, F., Herlina, L. (2017). Validasi Metode Dan Penentuan Kadar Asam Salisilat Bedak Tabur Dari Pasar Majalaya. *Jurnal Kimia Dan Pendidikan* 2017, 2(2), p: 142.
- Fariza, A., Martiana, E., Wahyuningtyas, E. (2013). Aplikasi Flash Lite untuk Pembelajaran Kimia (Materi: Ikatan Kimia dan Struktur Atom). Politeknik Elektronika Surabaya, p: 1-3.
- Galler KM. (2019) Chapter 8: Biological Basis for Endodontic Repair and Regeneration. *Essential endodontology : prevention and treatment of apical periodontitis* 3rd edition. Hoboken, NJ : Wiley-Blackwell, p. 239
- Garg, N., Garg, A., Kang, R S., Mann, J S., Machanda, S K., Ahjuna, B. (2014). Comparison of Apical Seal Produced By Zinc Oxide Eugenol, Metapex, Ketac Emdo and AH Plus Root Canal Sealer. *Edontology* 2014, 26(2), p: 252, 256.
- Garg, N., Garg, A. 2014. *Textbook of Endodontics*. Chapter 19: Obturation of root canal system. Jaypee Brothers Medical Publisher. New delhi, India, p: 293.
- Garg N, Garg A. 2010. *Text book of endodontics* 2nd ed. Jaypee Brothers Medical Publishers. New Delhi, India; 2010, p: 1.

- Ghahari, S A., Ghahari, E., Hou, P., Lu, N. (2018). Hydration Properties of Cement Pastes with Al-Zinc Oxide and Zinc Oxide Nanoparticles. *ES Material & Manufacturing* 2018, 2, p: 51.
- Ghasemzadeh, A., Ghasemzadeh, N. (2011). Flavonoid And Phenolic Acid: Role And Biochemical Activity In Plants And Human. *Journal Of Medicinal Plants Research* 2011, 5(31), p: 6697-6699.
- Giri, K P R . (2017). Hubungan antara Ketepatan Pengisian Saluran Akar dengan Keberhasilan Perawatan Saluran Akar. *Medicina* 2017, 48(1), p: 19.
- Grossman's. (2014). Chapter 15 : Obturation Of The Radicular Space. *Grossman's Endodontic Practice 14th Edition*. New Delhi : Wolters Kluwer, p: 172, 244, 287, 343-4, 367, 368.
- Gu, D. *et al.*(2017). 'Antifungal activity of pinosylvin from *Pinus densiflora* on turfgrass fungal diseases', *Journal of Applied Biological Chemistry*, 60(3), p: 213–218.
- Guspiara, K. (2019). Daya Antibakteri Ekstrak Daun *Red Pine (Pinus densiflora)* dan *Green Pine (Pinus merkusii)* terhadap *Streptococcus mutans*. Fakultas Kedokteran Gigi, Universitas Airlangga, Surabaya.
- Haddad, Afaf A., Aziz, Zeti A Che Ab. (2016). Bioceramic-Based Root canal Sealers: A Review. *International Journal of Biomaterials* 2016, p: 1-5.
- Hawley, M., Terry, D. Webb., Goodell, Gary G. (2010). Effect of Varying Water to Powder Ratios on the Setting Expansion on White and Gray Mineral Trioxide Aggregate. *Journal of Endodontic* 2010, 36(8), p:1379.
- Hendra, R., Ahmad, S., Sukari, A., Shukor, M. dan Oskoueian, E. (2011). Flavonoid Analysis and Antimicrobial Activity of Various Parts of *Phaleria macrocarpa* (Scheff.) Boerl Fruit. *International Journal of Molecular Sciences*, 12(6), p. 3422-3431.
- Hutagaol, R P., Nasrudin, Taufik, A. (2015). Ekstraksi Padat-Cair ZnO dengan Asam dari Debu Filter Proses Pembuatan Baja. *Jurnal Sains Natural Universitas Nusa Bangsa* 2015, 5(1), p: 7-8.
- Hoshino, R A., Silva, G F., Delfino, M M., Guerreiro-Tanomaru, J M., Tanomaru-Filho, M., Sasso-Ceri, E., Filho, I B., Cerri, P S. 2020. Physical

- Properties, Antimicrobial Activity and In Vivo Tissue Response to Apexit Plus. *Materials* 2020, 13(1171), p: 5.
- Ilic, Dragan V. (2013). The Flow of Two Zinc Oxide Eugenol Based Endodontic Sealers. *Vojnosanit Predl* 2013, 70(1), p: 22, 23.
- Juhantoro, N., Ariana, M., Sanuri, S. (2012). Penentuan Properties Bahan Bakar Batubara Untuk Bahan Bakar Marine Diesel Engine. *Jurnal Teknik ITS* 2012, 1(1), p: 272.
- Jung, M J., Jung, H A., Kang, S S., Hwang, G S., Choi, J S. (2009). A New Abietic Acid-Type Diterpene Clucoside from Needles of *Pinus densiflora*. *Archives of Pharmacal Research* 2009, 32(12), p. 1699.
- Jung, M J., Chung, H Y., Choi, J H., Choi, J S. (2003). Antioxidant Principles From the Needles of Red Pine, *Pinus densiflora*. *Phytotherapy Research*, 17, p: 1064-1068.
- Kasuma, N., Symond, D., Prianto, D. (2014). Hubungan Lama Pengadukan dengan Setting Time dan Kekuatan Kompresi Dental Stone. *Cakradaya Dental Journal* 2014, 6(2), p: 709.
- Kaur, A., Prasad, D N., Dua, J S., Menra M., Sharma, N. 2016. Aspect of Solubilisation: A Review. *World Journal of Pharmaceutical Research* 5(6), p: 741-747.
- Kavitha, R. (2005). Clinical and Radiographic Evaluation of Pulpectomies Using Zinc Oxide Eugenol with Iodoform, Calcium Hydroxide with Iodoform, Zinc Oxide Eugenol and Calcium Hydroxide with Iodoform an Invivo Study, The Tamilnadu Dr. M. G. R. Medical University, 2005.
- Khandelwal, D., Ballal, N V. (2016). Recent Advantage in Root Canal Sealers. *International Journal of Clinical Dentistry* 2016, 9(3), p: 183-184.
- Khoddami, A., Wilkes, M A., Roberts, T H. (2013). Techniques For Analysis Of Plant Phenolic Compounds. *Journal Molecules* 2013, 18, p: 2329
- Kim, H., Lee, B. dan Won, K. (2013). 'Comparison of Chemical Composition and Antimicrobial Activity of Essential Oils From Three Pinus Species', *Industrial Crops and Products*. Elsevier B.V, 44, p: 323–329.

- Kim, J., Im, S., Jeong, H., Jung, Y S., Lee, I., Kim, K J., Park, S K., Kim, D. 2018. Neuroprotective Effects of Korean Red Pine (*Pinus densiflora*) Bark Extract and Its Phenolics. *J. Microbiol. Biotechnol* 2018, 28(5), p: 680.
- Kiswandono, A A. (2016). *Review Metode Membran Cair Untuk Pemisahan Fenol. Analit: Analytic and Enviromental Chemistry*, 1(1), p: 74.
- Korea Forest Service (2011) *Statistical Yearbook of Forestry*. Daejeon, Korea: KFS.
- Kumar, N., Goel, N. (2019). Phenolic Acid: Natural Versatile Molecules With Promosing Therapeutic Application. *Biotechnology Report*, Elsevier 2019, p: 1-2.
- Kusuma, A R P. 2016. Pengaruh Lama Aplikasi dan Jenis Bahan Pencampuran Serbuk Kalsium Hidroksida Terhadap Kekerasan Mikro Dentin Saluran Akar. *Odonto Dental Journal* 3(1), p: 48-49.
- Lacey, S., Ford, T R Pitt., Yuan, X F., Sherriff, M., Watson, T. (2006). The Effect of Temperature on Viscosity of Root Canal Sealer. *International Endodontic Journal* 2006, 39, p: 860-865.
- Lacey, S., Ford, T R Pitt., Yuan, X F., Sherriff, M., Watson, T. (2005). A Study of The Rheological Properties of Endodontic Sealers. *International Endodontic Journal* 2005, 38, p: 499-500.
- Lu, J X., Foster, K., Murray, J. 2020. *Biochemistry, Dissolution and Solubilty*, 2020.
- Lumbantoruan, P., Yulianti, E. (2016). Pengaruh Suhu Terhadap Viskositas Minyak Pelumas (Oli). *Sainmatika* 2016, 13(2), p: 28,33.
- Mohammed, Omar F., Pines, D., Pines, E., Nibbering, Erik T J. (2007). Aqueous Bimolecular Proton Transfer In Acid–Base Neutralization. *Chemical Physic* 341 (2007) Elsevier, p: 240- 24.
- Mohammadi, Z., Dummer, P M H. 2011. Properties and Applications of Calcium Hydroxide in Endodontics and Dental Traumatology. *International Endodontic Journal* 201, 44, p: 697-730.

- Mora-Fonz, D., Lazauskas, T., Farrow, M R., Catlow, C Richard A., Woodley, S M., Sokol, A A. (2017). Why Are Polar Surface of ZnO Stable ?. *Chemistry Materials* 2017, 29, p: 5306-5307.
- Mulyawati, E., HNES, Marsetyawan., Sunarintyas, S., Handajani, J. (2013). Sifat Fisik Hidroksiapatit Sintesis Kalsit Sebagai Bahan Pengisi Pada Sealer Saluran Akar Resin Epoxy. *Dental Jurnal Makalah Kedokteran Gigi* 2013, 46(4), p: 210.
- Nejad, M., Ozgunes, H., Basaran, N. 2017. Pharmacological and Toxicological Properties of Eugenol. *Turk J Pharm Sci* 2017, 14(2), p: 201.
- Nursetiana, I D., Kasmui., Prasetya, A T. (2013). Pengaruh Enkapsulasi Logam Terhadap Nilai Celah Pita *Boron Nitride Nanotubes*. *Indonesia Journal of Chemical Science* 2013, 2(1), p: 81.
- Ouellette, R. J., & Rawn, J. D. (2015). *Aromatic Compounds. Principles Of Organic Chemistry*, 133–162. Doi:10.1016/B978-0-12-802444-7.00005-7, p: 133-134.
- Pandranki, J., Vanga, N R V., Chandrabhatla, S K. 2018. Zinc Oxide Eugenol and Endoflas Pulpectomy in Primary Molars : 24-mont Clinical and Radiographic Evaluation. *Journal of Indian Society of Pedodontics and Preventive Dentistry* 2018, p: 173-174.
- Pangestika, F M. (2019). Daya antibakteri ekstrak daun red pine (*Pinus densiflora*) dan green pine (*Pinus merkusii*) terhadap *Enterococcus faecalis*. Fakultas Kedokteran Gigi, universitas Airlangga, Surabaya, p: 51
- Park, Y., Jeon, M., Hwang, H., Park, M., Lee, S., Kim, S. dan Kim, M. (2011). Antioxidant activity and analysis of proanthocyanidins from pine (*Pinus densiflora*) needles. *Nutrition Research and Practice*, 5(4). p: 281.
- Parihar, V., Raja, M., Paulose, R. (2018). A Brief Review Of Structural, Electrical And Electrochemical Properties Of Zinc Oxide Nanoparticles. *Rv. Adv. Maater. Sci.* 53 2018, p: 119-121.

- Pasri, Y. (2017). Perawatan Saluran Akar Pada Gigi Incisivus Sentral Dan Lateral Maksila Dengan Perbedaan Status Pulpa : Laporan Kasus. *Insisiva Dental Journal* 2017, 6(1), p: 61.
- Patil, S., Hoshing, U., Rachalwar, D. 2017. Solubility of 5 Different Root Canal Sealer in Water and Artificial Saliva. *International Journal of Current Research* 2017, 9(11), p: 61490-61493.
- Patra JK, Kim SH, Hwang H, Choi JW, dan Baek KH. (2015). Volatile Compounds and Antioxidant Capacity of the Bio-Oil Obtained by Pyrolysis of Japanese Red Pine (*Pinus Densiflora* Siebold and Zucc.). *International Journal Molecules*, p. 3987.
- Perwitasari, F.L.R, Aminatun, & Sumarsih, S. (2012). Karakterisasi in vitro dan in vivo komposit alginat- poli vinil alkohol-zno nano sebagai wound dressing antibakteri. *Prosiding Seminar Fisika Terapan III*. Departemen Fisika-FST-Universitas Airlangga, Surabaya. ISBN:978-979-17494-2-8.
- Poggio, C., Arciola, C R., Dagna, A., Colombo, M., Bianchi, S., Visai, L. (2010). Solubility of Root Canal Sealer: A Comparative Study. *The Internatioan Journal of Article Organs*, 2010, 33(9), p: 677, 679.
- Prada, I., Mico-Munoz, P., Giner-Lluesma, T., Mico-Martinez, P., Collado-Castellano, N., Manzano-Saiz, A. (2019). Influence of Microbiology on Endodontic Faiure. Literature Review. *Journal Section : Oral Medicine And Pathology* 2019, 24(3), p: 365-370.
- Rahaswanti, L W A. (2017). Evaluasi Keberhasilan Pengisian Saluran Akar dengan Sediaan Zinc Oxide Eugenol dan Campuran Calcium Hydroxide dengan Pasta Iodoform. *DiscoverSys Intisari Sains Medis* 2017, 8(1), pp: 5-6.
- Rahman, Erwid F., Christiono, S. (2019). Effectivity Antibacterial Zinc Oxide Eugenol With Zinc Oxide Propolis For Endodontic Treatment In Primary Teeth. *Odonto Dental Journal* 2019, 6(2), p:113, 116.
- Romandanu., Rachmawati, S H., Lestari, S D. (2014). Pengujian Aktivitas Antioksidan Ekstrak Bunga Lotus (*Nelumbo nucifer*). *Fishtech*, 3(1), p: 4.

- Rovani, C A., Kamizar., Usman, M. 2008. Perbandingan Sitotoksisitas Endomethasone, AH Plus dan Apexit Plus terhadap Sel Fibroblas dengan Teknik *Root Dipping*. *Dentofasial* 2008 7(2), p: 71.
- Rusmiany, P., Wedagama, D M., Dewi, N P O K. (2017). Penggunaan Bahan Resin Sebagai Sealer Adesif pada Pengisian Saluran Akar. *E-journal unmas*, p: 4-6.
- Rusyadi, H F M. (2019). Perbedaan Aktivitas Antioksidan Ekstrak *Red Pine (Pinus Ddensiflora)* dan *Green Pine (Pinus merkusii)* Sebagai Kandidat Bahan Irigasi Saluran Akar. Fakultas Kedokteran Gigi, Universitas Airlangga, Surabaya.
- Saleh, M., Hammad, M., Silikas, N., Qualtrough, A., Watss, D C. (2010). A Laboratory Evaluation Of The Physical And Mechanical Properties Of Selected Root Canal Sealers. *International Endodontic Journal* 2010, 43, p: 886.
- Santoso, L., Kristanti, Y. (2016). Perawatan saluran akar satu kunjungan gigi molar kedua kiri mandibula nekrosis pulpa dan lesi periapikal. *MKGK Agustus* 2016, 2(2), p: 66.
- Santoso, Wahyu E A., Estiasih, T. (2014). Jurnal Review: Kopigemntasi Ubi Jalar Ungu (*Ipomoea Batatas* var *Ayamurasaki*) dengan Kopigmentasi Na-Kaseinat dan Protein Whey serta Stabilitasnya Terhadap Pemanasan. *Jurnal Pangan dan Agroindustri* 2014, 2(4), p: 122.
- Shenoy, A., Mala, K. (2016). *Endodontics: Principle and Practice*. Chapter 16. Contemporary techniques for obturation of root canal system, Elsevier India, p: 137-138.
- Sisthaningsi, E., Suprastiwi, E. (2006). Perawatan Saluran Akar Ulang Akibat Lepasnya Restorasi (Laporan Kasus). *IJD* 2006; Edisi Khusus KPPIKG XIV, p: 75.
- Smith, B T. 2016. *Physical Pharmacy*. Remington Education: Physical Pharmacy provides a simple, concise view of the concepts and applications of physical pharmacy. Pharmaceutical Press 2016, p: 31-35).

- Supreetha, S., Manur, S., Simon, S P., Jain, J., Tikare, S., Mahuli, A. (2011). Antifungal Activity of Ginger Extract on *Candida Albicans*: An In-Vitro Study. *Journal of Dental Science and Research* 2011, 2(2), p: 21.
- Tabassum S, Khan FR. (2016). Failure of endodontic treatment: The usual suspects. *Eur J Dent.* 2016;10, p:144-7.
- Tilakchand, M., Jain, A., Naik, B. (2016). Expansion of gutta percha in contact with various concentration of zinc oxide eugenol sealer: A three-dimensional volumetric study using spiral compound tomography. *Journal of Conservatif Dentistry* 2016, 19(4), p: 317-322.
- Tissos. N P., Yulkifli, Kamus, Z. (2014). Pembuatan Sistem Pengukuran Viskositas Fluida Secara Digital Menggunakan Sensor Efek Hall UGN3503 Berbasis Arduino UNO328. *Jurnal Saintek* 2014, 6(1), p: 71.
- Torres, F F E., Guerreiro, J M., Tanomaru., Bosso-Martelo, R., Chavez, G M., Andrade., Tanomaru-Filho, M. (2018). Solubility, Porosity and Fluid Uptake of Calcium Silicate-Based Cements. *Journal of Applied Oral Science* 2018, p: 2,4,6-7.
- Triharsa, S., Mulyawati, E. (2013). Pulpa Nekrosis Diserta Restorasi Mahkota Jacket Porselin Fuse Metal Dengan Pasak Fiber Reinforced Composit (Kasus Gigi Insisivus Sentralis Kanan Maksila). *Majalah Kedokteran Gigi*, Juni 2013, 20(1), p: 72.
- Tyagi, S., Mishra, P., Tyagi, P. (2013). Evolution of Root Canal Sealers: An Insight History. *European Journal of General Dentistry* 2013, 2(3), p: 199-201.
- United States Departement of Agriculture. (2018) 'Classification of *Pinus densiflora*', *Pinus densiflora*.
- Weiner, R. (2011). Liners And Bases In General Dentistry. *Australian Dental Journal* 2011, 56(1), p: 15.
- Widiyanti, P. Siswanto. (2011). In vivo characterization of polymer based dental cements. *Dental Journal Majalah Kedokteran Gigi* 2011, 4(4), p: 175-176.

- Yusbiani, E. AL-Hazmi, N., Yufita, E. (2017). Pengukuran Viskositas Beberapa Produk Minyak Goreng Kelapa Sawit Setelah Pemanasan. *Jurnal Teknologi dan Industri Pertanian Indonesia* 2017, 9(1), p: 28.
- Yusman, R., Mulyawati, E., Hadriyanto, W. (2013). Perbedaan Kebocoran Apikal Pada Obturasi Saluran Akar Menggunakan Tiga Siler Berbahan Dasar Resin. *J Ked GI* 2013, 4(2), p: 123.
- Zeid, Sawsan T A., Saleh, Abeer A Y M. (2015). Solubility, pH Change and Releasing Elements of Different Bioceramic and Mineral Trioxide Aggregate Root Canal Sealers Comparative Study. *Journal of Trauma & Treatment* 2015, 4(2), p: 1.
- Zeid, Sawsan T A., Saleh, Abeer A M., Khafagi, Monazah G E., Neel, Ensay A A. (2018). Setting Reaction Of New Bioceramic Root Canal Sealers. *International Journal For Rapid Communication* 2018, 51(8), p: 426, 429.
- Zhou, H., Shen, Y., Zheng, W., Li, L., Zheng, Y., Haapasalo, M. (2013). Physical Properties of 5 Root Canal Sealers. *Journal of Endodontic* 2013, 39(10), p: 1281-1285.