REFERENCES

Abedi, H., Shahriari, S. H., Jalalzadeh, S. M. & Moradkhany, R. (2010). A Comparative Study of Density of Obturated Root Canals by Conventional and Mechanical Lateral Condensation Techniques. *Dental Research Journal.* **6 (2)**.

Adanir, N., Çobankara, F. K. & Belli, S. (2006). Sealing properties of different resin based root canal sealers. *Journal of Biomedical Materials Research Part B: Applied Biomaterials.* **77 (1).** 1-4.

Amditis, C., Blackler, S., Bryant, R. & Hewitt, G. (1992). The adaptation achieved by four root canal filling techniques as assessed by three methods. *Australian dental journal.* **37 (6).** 439-444.

Aguiar, C., De Andrade Mendes, D., Câmara, A. & De Figueiredo, J. (2009). Evaluation of the centreing ability of the ProTaper Universal™ rotary system in curved roots in comparison to Nitiflex™ files. *Australian Endodontic Journal.* **35 (3).** 174-179.

Ahlberg, K., Assavanop, P. & Tay, W. (1995). A comparison of the apical dye penetration patterns shown by methylene blue and India ink in root-filled teeth. *International Endodontic Journal.* **28 (1).** 30-34.

Ai-Ghamdi, A. & Wennberg, A. (1994). Testing of sealing ability of endodontic filling materials. *Dental Traumatology.* **10 (6).** 249-255.

Al-Dewani, N., Hayes, S. J. & Dummer, P. M. H. (2000). Comparison of laterally condensed and low-temperature thermoplasticized gutta-percha root fillings. *Journal of Endodontics.* **26 (12).** 733-738.

Al-Qudah, A. & Awawdeh, L. (2006). Root canal morphology of mandibular incisors in a Jordanian population. *International Endodontic Journal.* **39 (11).** 873-877.

Al Negrish, A. S. (2009). Incidence of Post Obturation Pain related to two Root Canal Techniques. *Pakistan Oral & Dental Journal.* **29 (1).** 99-106.

Arias, A., Azabal, M., Hidalgo, J. & De La Macorra, J. (2009). Relationship between postendodontic pain, tooth diagnostic factors, and apical patency. *Journal of Endodontics.* **35 (2).** 189-192.

Athanassiadis, B., Abbott, P. & Walsh, L. (2007). The use of calcium hydroxide, antibiotics and biocides as antimicrobial medicaments in endodontics. *Australian Dental Journal.* **52 (s1).** 64-82.

Attam, K., Talwar, S., Yadav, S. & Miglani, S. (2009). Comparative analysis of the effect of autoclaving and 10% formalin storage on extracted teeth: A microleakage evaluation. *Journal of Conservative Dentistry: JCD.* **12 (1).** 26-30.

Aydemir, H., Ceylan, G., Tasdemir, T., Kalyoncuoglu, E. & Isildak, I. (2009). Effect of immediate and delayed post space preparation on the apical seal of root canals obturated with different sealers and techniques. *Journal of Applied Oral Science.* **17.** 605-610.

Ayhan, H., Sultan, N., Cirak, M., Ruhi, M. & Bodur, H. (1999). Antimicrobial effects of various endodontic irrigants on selected microorganisms. *International Endodontic Journal.* **32 (2).** 99-102.

Bachicha, W., Difiore, P., Miller, D., Lautenschlager, E. & Pashley, D. (1998). Microleakage of endodontically treated teeth restored with posts*. *Journal of Endodontics.* **24 (11).** 703-708.

Barroso, J., Carrasco, L., Capelli, A., Guerisoli, D., Saquy, P. & Pécora, J. (2005). Influence of gutta-percha points on the filling of simulated lateral canals. *Journal of Applied Oral Science.* **13.** 176-179.

Baugh, D. & Wallace, J. (2005). The role of apical instrumentation in root canal treatment: a review of the literature. *Journal of Endodontics.* **31 (5).** 333-340.

Baumgartner JC, Mader CL (1987). A scanning electron microscopic evaluation of four root canal irrigation regimens. *Journal of Endodontics* **13 (4),** 147-157.

Beer, R., Baumann, M. & Kielbassa, A. (2006a). Filling the root canal. *In Pocket atlas of endodontics,* 1st edn. p.176-189. New Yourk: Thieme Medical Pub.

Beer, R., Baumann, M. & Kielbassa, A. (2006b). Root canal instrumentation. *In Pocket atlas of endodontics,* 1st edn. p.100-152.Thieme Medical Pub.

Beer, R., Baumann, M., Kim, S., Rateitschak, K. & Wolf, H. (2000a). Root canal obturation. *In Color atlas of dental medicine: endodontology,* 1st edn. p.165-198. New yourk: Stuttgart: Thieme.

Beer, R., Baumann, M., Kim, S., Rateitschak, K. & Wolf, H. (2000b). Root canal preparation. *In Color atlas of dental medicine: endodontology,* 1st edn. p.107-144. Stuttgart: Thieme.\

Behnia, A. & Mcdonald, N. (2001). In vitro infrared thermographic assessment of root surface temperatures generated by the Thermafil plus system. *Journal of Endodontics.* **27 (3).** 203-205.

Bellido, M., Castro, S. & Cayon, M. (2010). Apical transportation created using three different patency instruments. *International Endodontic Journal.* **43.** 560-564.

Bergenholtz, G., Hörsted-Bindslev, P. & Reit, C. (2009a). Root canal instrumentation. *In Textbook of endodontology,* 2nd edn. p.172-192. United kingdom: Wiley-Blackwell.

Bergenholtz, G., Hörsted-Bindslev, P. & Reit, C. (2009b). Root filling techniques. *In Textbook of endodontology,* 2nd edn. p.219-233. United kingdom: Wiley-Blackwell.

Bergenholtz, G., Hörsted-Bindslev, P. & Reit, C. (2009c). Treatment of the necrotic pulp. *In Textbook of Endodontology,* 2nd edn. p. 156-175. United kingdom: Wiley-Blackwell.

Bezerra Silva, L., Leonardo, M. R., Faccioli, L. & Figueiredo, F. (1997). Inflammatory response to calcium hydroxide based root canal sealers. *Journal of Endodontics.* **23 (2).** 86-90.

Bodrumlu, E. (2007). Biocompatibility of retrograde root filling materials: A review. *Australian Endodontic Journal.* **34 (1).** 30-35.

Bortolini, M., Ferreira Dos Santos, S., Habitante, S., Rodrigues, J., Vance, R. & Jorge, A. (2010). Endodontic sealers: Intratubular penetration and permeability to Enterococcus faecalis. *Indian Journal of Dental Research.* **21 (1).** 40-43.

Bowman, C. & Baumgartner, J. (2002). Gutta-percha obturation of lateral grooves and depressions. *Journal of Endodontics.* **28 (3).** 220-223.

Brkic, A., Gürkan-Köseoglu, B. & Olgac, V. (2009). Surgical approach to iatrogenic complications of endodontic therapy: A report of 2 cases. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **107 (5).** 50-53.

Brosco, V., Bernardineli, N., Torres, S., Consolaro, A., Bramante, C., De Moraes, I., Ordinola-Zapata, R. & Garcia, R. (2010). Bacterial leakage in obturated root canals--part 2: a comparative histologic and microbiologic analyses. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **109 (5).** 788-794.

Carrat , P., Amato, M., Riccitiello, F. & Rengo, S. (2002). Evaluation of leakage of bacteria and endotoxins in teeth treated endodontically by two different techniques. *Journal of Endodontics.* **28 (4).** 272-275.

Carrotte, P. (2004). Endodontics: Part 7 Preparing the root canal. *British Dental Journal.* **197 (10).** 603-613.

Carson, K., Goodell, G. & Mcclanahan, S. (2005). Comparison of the antimicrobial activity of six irrigants on primary endodontic pathogens. *Journal of Endodontics.* **31 (6).** 471-473.

Carvalho-Sousa, B., Almeida-Gomes, F., Carvalho, P., Manáglia-Ferreira, C., Gurgel-Filho, E. & Albuquerque, D. (2010). Filling Lateral Canals: Evaluation of Different Filling Techniques. *European Journal of Dentistry.* **4 (3)**. 251–256.

Castellucci, A. (2004). Definition, Scope, Indications for Endodontic Therapy. Endodontics volume1. Florence: Edizioni Odontoiatriche Il Tridente S.r.l. 24-43.

Charles, T. & Charles, J. (1998). The'balanced force'concept for instrumentation of curved canals revisited. *International Endodontic Journal.* **31 (3).** 166-172.

Cheung G. & Chan T (2003). Long-term survival of primary root canal treatment carried out in a dental teaching hospital. *International Endodontic Journal.* **36 (2).** 117-128.

Cheung, G. & Liu, C. (2009). A retrospective study of endodontic treatment outcome between nickel-titanium rotary and stainless steel hand filing techniques. *Journal of Endodontics.* **35 (7).** 938-943.

Chu, C., Lo, E. & Cheung, G. (2005). Outcome of root canal treatment using Thermafil and cold lateral condensation filling techniques. *International Endodontic Journal.* **38 (3).** 179-185.

Cohen, S. & Burns, R. C. (2002). Cleaning and shaping the root canal system. *In Pathways of the Pulp,* 6th edn. p.179-218. *St. louis: The CV Mosby. Co.*

Collins, J., Walker, M., Kulild, J. & Lee, C. (2006). A comparison of three gutta-percha obturation techniques to replicate canal irregularities. *Journal of Endodontics.* **32 (8).** 762-765.

Da Silva, D., Endal, U., Reynaud, A., Portenier, I., Ørstavik, D. & Haapasalo, M. (2002). A comparative study of lateral condensation, heat softened gutta percha, and a modified master cone heat softened backfilling technique. *International Endodontic Journal.* **35 (12).** 1005-1011.

Da Silva Neto, U., De Moraes, I., Westphalen, V., Menezes, R., Carneiro, E. & Fariniuk, L. (2007). Leakage of 4 resin-based root-canal sealers used with a single-cone technique. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **104 (2).** 53-57.

Dadresanfar, B., Khalilak, Z., Shiekholeslami, M. & Afshar, S. (2010). Comparative study of the sealing ability of the lateral condensation technique and the BeeFill system after canal preparation by the Mtwo NiTi rotary system. *Journal of Oral Science.* **52 (2).** 281-285.

De-Deus, G., Gurgel-Filho, E., Maniglia-Ferreira, C. & Coutinho-Filho, T. (2004). Influence of the filling technique on depth of tubular penetration of root canal sealer: a scanning eletron microscopy study. *Brazilian Journal of Oral Sciences.* **3 (9)**. 433-438.

De-Deus, G., Leal, F., Soares, J., Luna, A., Murad, C., Fidel, S. & Fidel, R. (2008). Dye extraction results on bacterial leakproof root fillings. *Journal of Endodontics.* **34 (9).** 1093-1095.

De Bruyne, M., De Bruyne, R., Rosiers, L. & De Moor, R. (2005). Longitudinal study on microleakage of three root-end filling materials by the fluid transport method and by capillary flow porometry. *International Endodontic Journal.* **38 (2).** 129-136.

De Chevigny, C., Dao, T., Basrani, B., Marquis, V., Farzaneh, M., Abitbol, S. & Friedman, S. (2008). Treatment outcome in endodontics: the Toronto study—phase 4: initial treatment. *Journal of Endodontics.* **34 (3).** 258-263.

De Instrumentos, C. (2002). Cleaning ability of rotary instruments in the apical third of curved molars. *Rev Fac Odontol Bauru.* **10 (4).** 253-256.

De Leon Del Bello, T., Wang, N. & Roane, J. (2003). Crown-down tip design and shaping. *Journal of Endodontics.* **29 (8).** 513-518.

De Munck, J., Van Landuyt, K., Peumans, M., Poitevin, A., Lambrechts, P., Braem, M. & Van Meerbeek, B. (2005). A critical review of the durability of adhesion to tooth tissue: methods and results. *Journal of Dental Research.* **84 (2).** 118-32.

Desai, B. & Chandler, B. (2009). Calcium Hydroxide–Based Root Canal Sealers: A Review. *Journal of Endodontics.* **35 (4).** 475-480.

Dias, L., Giovani, A., Silva Sousa, Y., Vansan, L., Alfredo, E., Sousa-Neto, M. & Paulino, S. (2009). Effect of eugenol-based endodontic sealer on the adhesion of intraradicular posts cemented after different periods. *Journal of Applied Oral Science.* **17.** 579-583.

Donadio, M., Jiang, J., He, J., Wang, Y. H., Safavi, K. E. & Zhu, Q. (2009). Cytotoxicity evaluation of Activ GP and Resilon sealers in vitro. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **107 (6).** 74-78.

Drukteinis, S., Peciuliene, V., Maneliene, R. & Bendinskaite, R. (2009). In vitro study of microbial leakage in roots filled with EndoREZ sealer/EndoREZ® Points and AH Plus sealer/conventional gutta-percha points. *Stomatologija.* **11 (1).** 21-25.

Dultra, F., Barroso, J., Carrasco, L., Capelli, A., Guerisoli, D. & Pécora, J. (2006). Evaluation of apical microleakage of teeth sealed with four different root canal sealers. *Journal of Applied Oral Science.* **14.** 341-345.

Elayouti, A., Chu, A., Kimionis, I., Klein, C., Weiger, R. & Löst, C. (2008). Efficacy of rotary instruments with greater taper in preparing oval root canals. *International Endodontic Journal.* **41 (12).** 1088-1092.

Epley, S., Fleischman, J., Hartwell, G. & Cicalese, C. (2006). Completeness of root canal obturations: Epiphany techniques versus gutta-percha techniques. *Journal of Endodontics.* **32 (6).** 541-544.

Estrela, C., Bueno, M., Azevedo, B., Azevedo, J. & Pécora, J. (2008). A new periapical index based on cone beam computed tomography. *Journal of Endodontics.* **34.** 1325-1331.

Ezzie, E., Fleury, A., Solomon, E., Spears, R. & He, J. (2006). Efficacy of retreatment techniques for a resin-based root canal obturation material. *Journal of Endodontics.* **32 (4).** 341-344.

Farhad, A. R., Hasheminia, S., Razavi, S. & Feizi, M. (2011). Histopathologic evaluation of subcutaneous tissue response to three endodontic sealers in rats. *Journal of Oral Science.* **53 (1).** 15-21.

Farzaneh, M., Abitbol, S., Lawrence, H. P. & Friedman, S. (2004). Treatment Outcome in Endodontics-The Toronto Study. Phase II: Initial Treatment. *Journal of Endodontics.* **30 (5).** 302-309.

Ferraz, C., Gomes, N., Gomes, B., Zaia, A., Teixeira, F. & Souza-Filho, F. (2001). Apical extrusion of debris and irrigants using two hand and three engine-driven instrumentation techniques. *International Endodontic Journal.* **34 (5).** 354-358.

Fornari, V., Silva-Sousa, Y., Vanni, J., Pecora, J., Versiani, M. & Sousa-Neto, M. (2010). Histological evaluation of the effectiveness of increased apical enlargement for cleaning the apical third of curved canals. *International Endodontic Journal.* **43.** 988-994.

Garcia, L. F. R., Marques, A. a. F., Roselino, L. M. R. & Pires-De-Souza, F. C. (2010). Biocompatibility evaluation of Epiphany/Resilon root canal filling system in subcutaneous tissue of rats. *Journal of Endodontics.* **36 (1).** 110-114.

Garcia, L. F. R., Naves, L. Z., Consani, S., Correr-Sobrinho, L. & Pires-De-Souza, F. C. (2009). Apical obturation quality of Epiphany/Resilon root canal filling system. *Brazilian Journal of Oral Sciences.* **8 (3).** 132-136.

Garg, N. & Garg, A. (2007). cleaning and shaping of root canal system. *In Textbook of endodontics, 1st edn*. p.181-207. New Delhi: Jaypee Brothers Publishers.

Gen ̧oglu, N., Oru ̧oglu, H. & Helvacloglu, D. (2007). Apical leakage of different gutta-percha techniques: Thermafil, Js Quick-Fill, Soft Core, Microseal, System B and lateral condensation with a computerized fluid filtration meter. *European Journal of Dentistry.* **1 (2).** 97-103.

Gesi, A., Raffaelli, O., Goracci, C., Pashley, D., Tay, F. & Ferrari, M. (2005). Interfacial strength of Resilon and gutta-percha to intraradicular dentin. *Journal of Endodontics.* **31 (11).** 809-813.

Gilhooly, R. M. P., Hayes, S. J., Bryant, S. T. & Dummer, P. M. H. (2001). Comparison of lateral condensation and thermomechanically compacted warm [alpha]-phase gutta-percha with a single cone for obturating curved root canals. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology & Endodontics.* **91 (1).** 89-94.

Goerig, A. C., Michelich, R. J. & Schultz, H. H. (1982). Instrumentation of root canals in molar using the step-down technique. *Journal of Endodontics.* **8 (12).** 550-554.

Goldberg, F. & Massone, E. (2002). Patency file and apical transportation: an in vitro study. *Journal of Endodontics.* **28 (7).** 510-511.

Gomes-Filho, J., Hopp, R., Bernabé, P., Nery, M., Otoboni Filho, J. & Dezan Júnior, E. (2008). Evaluation of the apical infiltration after root canal disruption and obturation. *Journal of Applied Oral Science.* **16.** 345-349.

Goodis, H., Marshall Jr, G., White, J., Gee, L., Hornberger, B. & Marshall, S. (1993). Storage effects on dentin permeability and shear bond strengths. *Dental Materials.* **9 (2).** 79-84.

Gordon, M., Love, R. & Chandler, N. (2005). An evaluation of. 06 tapered gutta-percha cones for filling of. 06 taper prepared curved root canals. *International Endodontic Journal.* **38 (2).** 87-96.

Gound, T., Riehm, R., Odgaard, E. & Makkawy, H. (2001). Effect of spreader and accessory cone size on density of obturation using conventional or mechanical lateral condensation. *Journal of Endodontics.* **27 (5).** 358-361.

Grande, N. M., Plotino, G., Pecci, R., Bedini, R., Pameijer, C. H. & Somma, F. (2008). Micro-computerized tomographic analysis of radicular and canal morphology of premolars with long oval canals. *Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **106 (3).** e70-6.

Guelzow, A., Stamm, O., Martus, P. & Kielbassa, A. (2005). Comparative study of six rotary nickel-titanium systems and hand instrumentation for root canal preparation. *International Endodontic Journal.* **38 (10).** 743-752.

Guess, G., Edwards, K., Yang, M., Iqbal, M. & Kim, S. (2003). Analysis of continuous-wave obturation using a single-cone and hybrid technique. *Journal of Endodontics.* **29 (8).** 509-512.

Guigand, M., Glez, D., Sibayan, E., Cathelineau, G. & Vulcain, J. M. (2005). Comparative study of two canal obturation techniques by image analysis and EDS microanalysis. *British dental journal.* **198 (11).** 707-711.

Guigand, M., Pellen-Mussi, P., Goff, A. L., Vulcain, J. M. & Bonnaure-Mallet, M. (1999). Evaluation of the cytocompatibility of three endodontic materials. *Journal of Endodontics.* **25 (6).** 419-423.

Gulsahi, K., Cehreli, Z., Onay, E., Tasman-Dagli, F. & Ungor, M. (2007). Comparison of the area of resin-based sealer and voids in roots obturated with Resilon and gutta-percha. *Journal of Endodontics.* **33 (11).** 1338-1341.

Gurbuz, T., Ozdemir, Y., Kara, N., Zehir, C. & Kurudirek, M. (2008). Evaluation of root canal dentin after Nd: YAG laser irradiation and treatment with five different irrigation solutions: a preliminary study. *Journal of Endodontics.* **34 (3).** 318-321.

Gurgel-Filho, E., Feitosa, J., Gomes, B., Ferraz, C., Souza Filho, F. & Teixeira, F. (2006). Assessment of different gutta percha brands during the filling of simulated lateral canals. *International Endodontic Journal.* **39 (2).** 113-118.

Hammad, M., Qualtrough, A. & Silikas, N. (2007). Effect of new obturating materials on vertical root fracture resistance of endodontically treated teeth. *Journal of Endodontics.* **33 (6).** 732-736.

Hammad, M., Qualtrough, A. & Silikas, N. (2009). Evaluation of root canal obturation: a three-dimensional in vitro study. *Journal of Endodontics.* **35 (4).** 541-544.

Hartwell, G., Barbieri, S., Gerard, S. & Gunsolley, J. (1991). Evaluation of size variation between endodontic finger spreaders and accessory gutta-percha cones*. *Journal of Endodontics.* **17 (1).** 8-11.

Harty, F. J. & Ford, T. R. P. (2004). Preparation of the root canal system. *Harty's endodontics in clinical practice.* 5th ed. p. 77-82. London: Butterworth-Heinemann.

Hauman, C. & Love, R. (2003). Biocompatibility of dental materials used in contemporary endodontic therapy: a review. Part 2. Root-canal-filling materials. *International Endodontic Journal.* **36 (3).** 147-160.

Hecker, H., Bartha, T., Lost, C. & Weiger, R. (2010). Determining the apical preparation size in premolars: part III. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **110 (1).** 118-124.

Hegde, J. (2008). Obturation of prepared canal. *In Endodontics: Prep Manual for undergraduates*, 1st edn. p.167-183. New Delhi: Elsevier.

Herbert, J., Bruder, M., Braunsteiner, J., Altenburger, M. & Wrbas, K. (2009). Apical quality and adaptation of Resilon, EndoREZ, and Guttaflow root canal fillings in combination with a noncompaction technique. *Journal of Endodontics.* **35 (2).** 261-264.

Heredia, M. P., Gonzâlez, J. C., Luque, C. M. F. & Rodrîguez, M. P. G. (2007). Apical seal comparison of low-temperature thermoplasticized gutta-percha technique and lateral condensation with two different master cones. *Medicina Oral, Patologîa Oral Y Cirugîa Bucal.* **12.** 175-179.

Hiraishi, N., Loushine, R., Vano, M., Chieffi, N., Weller, R., Ferrari, M., Pashley, D. & Tay, F. (2006). Is an oxygen inhibited layer required for bonding of resin-coated gutta-percha to a methacrylate-based root canal sealer? *Journal of Endodontics.* **32 (5).** 429-433.

Hörsted-Bindslev, P., Andersen, M., Jensen, M., Nilsson, J. & Wenzel, A. (2007). Quality of molar root canal fillings performed with the lateral compaction and the single-cone technique. *Journal of Endodontics.* **33 (4).** 468-471.

Hülsmann, M., Peters, O. A. & Dummer, P. M. H. (2005). Mechanical preparation of root canals: shaping goals, techniques and means. *Endodontic Topics.* **10 (1).** 30-76.

Ibarrola, J. (2002). Evaluation of three methods of obturation using the obtura II system. *Brazilian Journal of Oral Sciences.* **1 (3).** 126-128.

Ingle, J. & Bakland, L. (2002a). Endodontic cavity preparation. *In Endodontics,* 5th edn. p.405-570. Hamilton: Pmph Bc Decker.

Ingle, J. & Bakland, L. (2002b). Obturation of the radicular space .*In Endodontics,* 5th edn. p.571-667. Hamilton: Pmph Bc Decker.

Ingle, J., Bakland, L. & Baumgartner, J. (2008a). Modern endodontic therapy: Past, Present and Future. *In Ingle's endodontics 6.* p.1-35. Pmph USA Ltd.

Ingle, J., Bakland, L. & Baumgartner, J. (2008b). NonMicrobile endodontic disease. *In Ingle's endodontics 6.* p.309-342. Pmph USA Ltd.

Ingle, J., Bakland, L. & Baumgartner, J. (2008c). Obturation of the radicular space. *In Ingle's endodontics 6.* p.1053-1087. Pmph USA Ltd.

Ingle, J., Bakland, L. & Baumgartner, J. (2008d). Preparation of the coronal and radicular space. *In Ingle's endodontics 6.* p.877-991. Pmph USA Ltd.

Iqbal, M. K., Abrass, L., Oviedo-Marmo, M. & Walsch, H. (2007). In vitro microscopic analysis of apical 3mm obturation after gt, lightspeed, and profile root canal preparation. *Journal of Dow University of Health Sciences.* **1 (1).** 10-14.

ISO standards. (2003). ISO/TS 11405. International Organization for Standardization. dental materials—testing of adhesion to tooth structure. Geneva, Switzerland: WHO.

Iyer, V. H., Indira, R., Ramachandran, S. & Srinivasan, M. (2006). Anatomical variations of mandibular premolars in Chennai population. *Indian Journal of Dental Research.* **17 (1).** 7-10.

Jainaen, A., Palamara, J. & Messer, H. (2007). Push out bond strengths of the dentine–sealer interface with and without a main cone. *International Endodontic Journal.* **40 (11).** 882-890.

James, B., Brown, C., Legan, J., Moore, B. & Vail, M. (2007). An in vitro evaluation of the contents of root canals obturated with gutta percha and AH-26 sealer or Resilon and Epiphany sealer. *Journal of Endodontics.* **33 (11).** 1359-1363.

Johnson, W. (2002a). Canal preparation. *In Color atlas of endodontics,* 1st edn. p.67-77. Philadelphia: WB Saunders.

Johnson, W. (2002b). Obturation. *In Color atlas of endodontics,* 1st edn. p.99-115. WB Saunders, Philadelphia.

Jung, I. Y., Lee, S. B., Kim, E. S., Lee, C. Y. & Lee, S. J. (2003). Effect of different temperatures and penetration depths of a System B plugger in the filling of artificially created oval canals 1. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology & Endodontics.* **96 (4).** 453-457.

Kaplan, A., Ormaechea, M., Picca, M., Canzobre, M. & Ubios, A. (2003). Rheological properties and biocompatibility of endodontic sealers. *International Endodontic Journal.* **36 (8).** 527-532.

Karabucak, B., Kim, A., Chen, V. & Iqbal, M. K. (2008). The comparison of gutta-percha and Resilon penetration into lateral canals with different thermoplastic delivery systems. *Journal of Endodontics.* **34 (7).** 847-849.

Karagenç B., Gençog Lu, N., Ersoy, M., Cansever, G. & Külekçi, G. (2006). A comparison of four different microleakage tests for assessment of leakage of root canal fillings. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **102 (1).** 110-113.

Kersten, H. W., Wesselink. P. R. and Thoden van Velzen, S.K. (1987). The diagnostic reliability of the buccal radiograph after root canal filling. *International Endodontic Journal*. **20.** 20-24.

Khedmat, S. & Sedaghati, M. (2006). Comparison of the Tensile Bond Strength of Four Root Canal Sealers. *Journal of Dentistry of Tehran University of Medical Sciences.* **3 (1).** 1-5.

Kim, Y., Grandini, S., Ames, J., Gu, L., Kim, S., Pashley, D., Gutmann, J. & Tay, F. (2010). Critical Review on Methacrylate Resin–based Root Canal Sealers. *Journal of Endodontics.* **36 (3).** 383-399.

Kimyai, S., Oskoee, S., Rafighi, A., Valizadeh, H., Ajami, A. & Helali, Z. (2010). Comparison of the effect of hydrogel and solution forms of sodium ascorbate on orthodontic bracket-enamel shear bond strength immediately after bleaching: An in vitro study. *Indian Journal of Dental Research.* **21 (1).** 54-58.

Kirkevang, L. L. & Horsted-Bindslev, P. (2002). Technical aspects of treatment in relation to treatment outcome. *Endodontic Topics.* **2 (1).** 89-102.

Ko, C. H. W., Cheung, G. S. P. & Chan, A. W. K. (2008). A review of a resin-based root canal filling material. *Hong Kong Dental Journal.* **5 (1).** 38-44.

Komabayashi, T., Ahn, C., Zhang, S. & Zhu, Q. (2009). Chronological comparison of root dentin moisture in extracted human teeth stored in formalin, sodium azide, and distilled water. *Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics.* **108 (1).** 50-54.

Kubo, C. H., Gomes, A. P. M. & Mancini, M. N. G. (2005). In vitro evaluation of apical sealing in root apex treated with demineralization agents and retrofiled with mineral trioxide aggregate through marginal dye leakage. *Brazilian Dental Journal.* **16 (3).** 187-191.

Kulild, J., Lee, C., Dryden, J., Collins, J. & Feil, P. (2007). A comparison of 5 gutta-percha obturation techniques to replicate canal defects. *Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics.* **103 (1).** 28-32.

Kustarci, A., Akdemir, N., Siso, S. & Altunbas, D. (2008). Apical Extrusion of Intracanal Debris Using Two Engine Driven and Step-Back Instrumentation Techniques: An In-Vitro Study. *European Journal of Dentistry.* **2 (4).** 233-239.

Kuzekanani, M., Walsh, L. & Yousefi, M. (2009). Cleaning and shaping curved root canals: Mtwo® vs ProTaper® instruments, a lab comparison. *Indian Journal of Dental Research.* **20 (3).** 268-270.

Kytridou, V., Gutmann, J. & Nunn, M. (1999). Adaptation and sealability of two contemporary obturation techniques in the absence of the dentinal smear layer. *International Endodontic Journal.* **32 (6).** 464-474.

Lea, C., Apicella, M., Mines, P., Yancich, P. & Parker, M. (2005). Comparison of the obturation density of cold lateral compaction versus warm vertical compaction using the continuous wave of condensation technique. *Journal of Endodontics.* **31 (1).** 37-39.

Lee, B., Lai, E., Liao, K., Lee, C., Hsieh, K. & Lin, C. (2008). A Novel Polyurethane-based Root Canal-obturation Material and Urethane-Acrylate-based Root Canal Sealer--Part 2: Evaluation of Push-out Bond Strengths. *Journal of Endodontics.* **34 (5).** 594-598.

Lee, F., Van Cura, J. & Begole, E. (1998). A comparison of root surface temperatures using different obturation heat sources*. *Journal of Endodontics.* **24 (9).** 617-620.

Lee, K., Williams, M., Camps, J. & Pashley, D. (2002). Adhesion of endodontic sealers to dentin and gutta-percha. *Journal of Endodontics.* **28 (10).** 684-688.

Lendini, M., Alemanno, E., Migliaretti, G. & Berutti, E. (2005). The effect of high-frequency electrical pulses on organic tissue in root canals. *International Endodontic Journal.* **38.** 531-538.

Leonard, J., Gutmann, J. & Guo, I. (1996). Apical and coronal seal of roots obturated with a dentine bonding agent and resin. *International Endodontic Journal.* **29 (2).** 76-83.

Leonardo, M. (1999). Tissue response to an epoxy resin-based root canal sealer. *Dental Traumatology.* **15 (1).** 28-32.

Leonardo, M. R. & Da Silva, L. a. B. (1999). Release of formaldehyde by 4 endodontic sealers. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **88 (2).** 221-225.

Leonardo, R. (2009). Obturation of the Root Canal—Listening to the Needs of the Tooth with Science and Simplicity. *Oralhealth journal.* 66-70.

Liewehr, F., Kulild, J. & Primack, P. (1993). Improved density of gutta-percha after warm lateral condensation*. *Journal of Endodontics.* **19 (10).** 489-491.

Limkangwalmongkol, S., Abbott, P. & Sandler, A. (1992). Apical dye penetration with four root canal sealers and gutta-percha using longitudinal sectioning. *Journal of Endodontics.* **18 (11).** 535-539.

Lipski, M. & Wozniak, K. (2003). In vitro infrared thermographic assessment of root surface temperature rises during thermafil retreatment using system B. *Journal of Endodontics.* **29 (6).** 413-415.

Lucena-Martin, C., Ferrer-Luque, C., Gonzalez-Rodriguez, M., Robles-Gijon, V. & Navajas-Rodriguez De Mondelo, J. (2002). A comparative study of apical leakage of Endomethasone, Top Seal, and Roeko Seal sealer cements. *Journal of Endodontics.* **28 (6).** 423-426.

Lyroudia, K., Pantelidou, O., Mikrogeorgis, G., Nikopoulos, N. & Pitas, I. (2000). Three-dimensional reconstruction: A new method for the evaluation of apical microleakage. *Journal of Endodontics.* **26 (1).** 36-38.

Maltezos, C., Glickman, G., Ezzo, P. & He, J. (2006). Comparison of the sealing of Resilon, Pro Root MTA, and Super-EBA as root-end filling materials: a bacterial leakage study. *Journal of Endodontics.* **32 (4).** 324-327.

Mancini, M., Armellin, E., Casaglia, A., Cerroni, L. & Cianconi, L. (2009). A comparative study of smear layer removal and erosion in apical intraradicular dentine with three irrigating solutions: a scanning electron microscopy evaluation. *Journal of Endodontics.* **35 (6).** 900-903.

Maniglia-Ferreira, C., Silva Jr, J., Paula, R., Feitosa, J., Cortez, D., Zaia, A. & Souza-Filho, F. (2005). Brazilian gutta-percha points: Part I: chemical composition and X-ray diffraction analysis. *Brazilian Oral Research.* **19.** 193-197.

Marroqu ń, B., Wolter, D. & Willershausen-Z önnchen, B. (2001). Dimensional variability of nonstandardized greater taper finger spreaders with matching gutta-percha points. *International Endodontic Journal.* **34 (1).** 23-28.

Mcmichen, F., Pearson, G., Rahbaran, S. & Gulabivala, K. (2003). A comparative study of selected physical properties of five root canal sealers. *International Endodontic Journal.* **36 (9).** 629-635.

Mente, J., Werner, S., Koch, M., Henschel, V., Legner, M., Staehle, H. & Friedman, S. (2007). In vitro leakage associated with three root-filling techniques in large and extremely large root canals. *Journal of Endodontics.* **33 (3).** 306-309.

Messing, J. & Stock, C. (1988). Preparation of the root canal. *In A Color atlas of endodontics,* 1st edn. p.141-152. Singapore: Wolfe medical puplications Ltd.

Mickel, A., Chogle, S., Liddle, J., Huffaker, K. & Jones, J. (2007). The role of apical size determination and enlargement in the reduction of intracanal bacteria. *Journal of Endodontics.* **33 (1).** 21-23.

Miletić, I., Juki , S., Ani , I., Željezi , D. & Garaj Vrhovac Osmak, V. (2003). Examination of cytotoxicity and mutagenicity of AH26 and AH Plus sealers. *International Endodontic Journal.* **36 (5).** 330-335.

Mittal, N., Dewan, N., Gupta, P. & Sharma, G. (2002). In-vivo radiographic evaluation of sealing ability of root canals with various obturation techniques. *Endodontology.* **14**. 46-51.

Moayedi, S. & Lata, D. (2004). Mandibular first premolar with three canals. *Endodontology.* **16.** 26-29.

Mônika, C. M. & Fröner, I. C. (2006). A scanning electron microscopic evaluation of different root canal irrigation regimens. *Brazilian Oral Research.* **20 (3).** 235-240.

Monteiro, J., Chalakkal, P. & De Ataide, I. N. (2011). In Vitro Resistance to Fracture of Roots Obturated With Resilon or Gutta-Percha. *Journal of Endodontics.***37 (6).** 828-831.

Monticelli, F., Sadek, F., Schuster, G., Volkmann, K., Looney, S., Ferrari, M., Toledano, M., Pashley, D. & Tay, F. (2007). Efficacy of two contemporary single-cone filling techniques in preventing bacterial leakage. *Journal of Endodontics.* **33 (3).** 310-313.

Murgel, C., Walmsley, A. & Walton, R. (1991). The efficacy of step-down procedures during endosonic instrumentation. *Journal of Endodontics.* **17 (3).** 111-115.

Masudi, S. & Pameijer, C. H. (2011). Evaluation of Gutta-Percha-Filled Areas in Root Canals after Filling by Two Different Obturation Techniques. *Australian Journal of Basic and Applied Sciences.* **5 (8).** 631-636.

Nagas, E., Uyanik, O., Altundasar, E., Durmaz, V., Cehreli, Z. C., Vallittu, P. K. & Lassila, L. V. J. (2010). Effect of Different Intraorifice Barriers on the Fracture Resistance of Roots Obturated with Resilon or Gutta-Percha. *Journal of Endodontics.* **36 (6).** 1061-1063.

Nagpal, R., Tewari, S. & Gupta, R. (2007). Effect of various surface treatments on the microleakage and ultrastructure of resin-tooth interface. *Operative Dentistry.* **32 (1).** 16-23.

Namazikhah, S., Shirani, R., Mohseni, A. & Farsio, F. (2000). Dye Leakage Study: Comparing Conventional and New Techniques. *Journal of the California Dental Association*. **28 (6).** 435-442.

Nawal, R. R., Parande, M., Sehgal, R., Rao, N. R. & Naik, A. (2011). A comparative evaluation of 3 root canal filling systems. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*.**111 (3).** 387-393.

Nelson, E., Liewehr, F. & West, L. (2000). Increased density of gutta-percha using a controlled heat instrument with lateral condensation. *Journal of Endodontics.* **26 (12).** 748-750.

Nielsen, B. & Baumgartner, J. (2006). Spreader penetration during lateral compaction of Resilon and gutta-percha. *Journal of Endodontics.* **32 (1).** 52-54.

Ng, Y. L., Mann, V., Rahbaran, S., Lewsey, J. & Gulabivala, K. (2008). Outcome of primary root canal treatment: systematic review of the literature–Part 2. Influence of clinical factors. *International Endodontic Journal.* **41 (1).** 6-31.

Ogasawara, T., Yoshimine, Y., Yamamoto, M. & Akamine, A. (2003). Biocompatibility of an experimental glass-ionomer cement sealer in rat mandibular bone. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology & Endodonology.* **96 (4).** 458-465.

Olga Onay, E., Ungor, M. & Orucoglu, H. (2006). An in vitro evaluation of the apical sealing ability of a new resin-based root canal obturation system. *Journal of Endodontics*. **32 (10).** 976-978.

Omer, O., Al Shalabi, R., Jennings, M., Glennon, J. & Claffey, N. (2004). A comparison between clearing and radiographic techniques in the study of the root-canal anatomy of maxillary first and second molars. *International Endodontic Journal.* **37 (5).** 291-296.

Onay, E., Ungor, M. & Ozdemir, B. (2007). In vivo evaluation of the biocompatibility of a new resin-based obturation system. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **104 (3).** 60-66.

Onay, E. O., Orucoglu, H., Kiremitci, A., Korkmaz, Y. & Berk, G. (2010). Effect of Er, Cr: YSGG laser irradiation on the apical sealing ability of AH Plus/gutta-percha and Hybrid Root Seal/Resilon Combinations. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*.**110 (5).** 657-664.

Orellana, M., Nelson, A., Carey, J., Heo, G., Boychuk, D. & Major, P. (2008). Surface analysis of etched molar enamel by gas adsorption. *Journal of Dental Research.* **87 (6).** 532-536.

Orstavik, D. (2005). Materials used for root canal obturation: technical, biological and clinical testing. *Endodontic Topics.* **12 (1).** 25-38.

Ozawa, T., Taha, N. & Messer, H. (2009). A comparison of techniques for obturating oval-shaped root canals. *Dental Materials Journal.* **28 (3).** 290-294.

Pameijer, C. & Zmener, O. (2010). Resin Materials for Root Canal Obturation. *Dental Clinics of North America.* **54 (2).** 325-344.

Paqué, F., Balmer, M., Attin, T. & Peters, O. A. (2010). Preparation of oval-shaped root canals in mandibular molars using nickel-titanium rotary instruments: a micro-computed tomography study. *Journal of Endodontics.* **36 (4).** 703-707.

Paqué, F., Luder, H., Sener, B. & Zehnder, M. (2006). Tubular sclerosis rather than the smear layer impedes dye penetration into the dentine of endodontically instrumented root canals. *International Endodontic Journal.* **39 (1).** 18-25.

Paque, F. & Sirtes, G. (2007). Apical sealing ability of Resilon/Epiphany versus gutta-percha/AH Plus: immediate and 16-months leakage. *International Endodontic Journal.* **40.** 722-729.

Parashos, P., Gordon, I. & Messer, H. (2004). Factors influencing defects of rotary nickel-titanium endodontic instruments after clinical use. *Journal of Endodontics.* **30 (10).** 722-725.

Parashos, P. & Messer, H. (2006). Rotary NiTi instrument fracture and its consequences. *Journal of Endodontics.* **32 (11).** 1031-1043.

Pascon, E. A. & Spångberg, L. S. W. (1990). In vitro cytotoxicity of root canal filling materials: 1. Gutta-percha. *Journal of Endodontics.* **16 (9).** 429-433.

Patel, D., Sherriff, M., Ford, T., Watson, T. & Mannocci, F. (2006). The penetration of RealSeal primer and Tubliseal into root canal dentinal tubules: a confocal microscopic study. *International Endodontic Journal.* **40 (1).** 67-71.

Pathomvanich, S. & Edmunds, D. (1996). The sealing ability of Thermafil obturators assessed by four different microleakage techniques. *International Endodontic Journal.* **29 (5).** 327-334.

Pawi Ska, M., Kierklo, A. & Marczuk-Kolada, G. (2006). New technology in endodontics–the Resilon-Epiphany system for obturation of root canals. *Advances in Medical Sciences.* **51 (1).** 154-157.

Peng, L., Ye, L., Tan, H. & Zhou, X. (2007). Outcome of root canal obturation by warm gutta-percha versus cold lateral condensation: a meta-analysis. *Journal of Endodontics.* **33 (2).** 106-109.

Pérez Heredia, M., Clavero González, J., Ferrer Luque, C. & González Rodríguez, M. (2007). Apical seal comparison of low-temperature thermoplasticized gutta-percha technique and lateral condensation with two different master cones. *Medicina Oral, Patología Oral Y Cirugía Bucal.* **12.** 175-179.

Pesce, A., López, S. & Rodríguez, M. (2007). Effect of post space preparation on apical seal: Influence of time interval and sealer. *Medicina Oral, Patología Oral Y Cirugía Bucal.* **12 (6)**. 464-468.

Pitt-Ford, T. (2004). Root canal filling.*In Harty's Endodontics in Clinical Practice,* 4th edn. p.113-136.Wright: Elsevier Limited.

Pitt-Ford, T., Rhodes, J. & Ford, H. (2002). Obturation techniques. *In Endodontics: problem-solving in clinical practice,* 1st edn. p.121-163. United kangdom: Martin Dunitz Publishers.

Plotino, G., Grande, N., Sorci, E., Malagnino, V. & Somma, F. (2006). A comparison of cyclic fatigue between used and new Mtwo Ni–Ti rotary instruments. *International Endodontic Journal.* **39 (9).** 716-723.

Pommel, L. & Camps, J. (2001). Effects of pressure and measurement time on the fluid filtration method in endodontics. *Journal of Endodontics.* **27 (4).** 256-258.

Putzer, P., Hoy, L. & Günay, H. (2008). Highly concentrated EDTA gel improves cleaning efficiency of root canal preparation in vitro. *Clinical oral investigations.* **12 (4).** 319-324.

Rahimi, S., Oskoee, S., Shahi, S., Maljaei, E., Abdolrahimi, M., Mokhtari, H. & Kazemi, A. (2010). In vitro comparison of apical microleakage following canal obturation with lateral and thermoplasticized gutta-percha compaction techniques. *African Journal of Biotechnology.* **9 (48).** 8235-8240.

Hashem, A., Ghoneim, A., Lutfy, R. & Fouda, M. (2009). The effect of different irrigating solutions on bond strength of two root canal-filling systems. *Journal of Endodontics.* **35 (4).** 537-540.

Reid, L., Kazemi, R. & Meiers, J. (2003). Effect of fatigue testing on core integrity and post microleakage of teeth restored with different post systems. *Journal of Endodontics.* **29 (2).** 125-131.

Rödig, T. & Hülsmann, M. (2003). Diagnosis and root canal treatment of a mandibular second premolar with three root canals. *International Endodontic Journal.* **36 (12).** 912-919.

Roggendorf, M., Ebert, J., Petschelt, A. & Frankenberger, R. (2007). Influence of moisture on the apical seal of root canal fillings with five different types of sealer. *Journal of Endodontics.* **33 (1).** 31-33.

Sadeghi, S. & Sadeghi, H. H. (2009). Density and apical sealing ability of lateral compaction using two different spreaders and vertical compaction using BeeFill device. *Iranian Endodontic Journal (IEJ).***4 (1).** 10-14.

Safi, L., Leila Khojastehpour2, D., Azar, M. R. & Layeghnejad, A. H. (2008). A comparative study on rotary Mtwo versus passive step back of hand K-file in preparation of extracted curved root canals. *Iranian Endodontic Journal (IEJ).* **3 (2).** 24-28.

Sammons, R. & Marquis, P. (1997). Application of the low vacuum scanning electron microscope to the study of biomaterials and mammalian cells. *Biomaterials.* **18 (1).** 81-86.

Sandhya, R., Velmurugan, N. & Kandaswamy, D. (2010). Assessment of root canal morphology of mandibular first premolars in the Indian population using spiral computed tomography: An in vitro study. *Indian Journal of Dental Research.* **21 (2).** 169.

Scarano, A., Di Carlo, F., Quaranta, A. & Piattelli, A. (2007). Injury of the inferior alveolar nerve after overfilling of the root canal with endodontic cement: a case report. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **104 (1).** 56-59.

Scarparo, R. K., Grecca, F. S. & Fachin, E. V. F. (2009). Analysis of tissue reactions to methacrylate resin-based, epoxy resin-based, and zinc oxide-eugenol endodontic sealers. *Journal of Endodontics.* **35 (2).** 229-232.

Scelza, M., Coil, J., Maciel, A., Oliveira, L. & Scelza, P. (2008). Comparative sem evaluation of three solvents used in endodontic retreatment: an ex vivo study. *Journal of Applied Oral Science.* **16.** 24-29.

Schaeffer, M., White, R. & Walton, R. (2005). Determining the optimal obturation length: a meta-analysis of literature. *Journal of Endodontics.* **31 (4).** 271-274.

Schäfer, E., Erler, M. & Dammaschke, T. (2006a). Comparative study on the shaping ability and cleaning efficiency of rotary Mtwo instruments. Part 1. Shaping ability in simulated curved canals. *International Endodontic Journal.* **39 (3).** 196-202.

Schäfer, E., Erler, M. & Dammaschke, T. (2006b). Comparative study on the shaping ability and cleaning efficiency of rotary Mtwo instruments. Part 2. Cleaning effectiveness and shaping ability in severely curved root canals of extracted teeth. *International Endodontic Journal.* **39 (3).** 203-212.

Schäfer, E. & Olthoff, G. (2002). Effect of three different sealers on the sealing ability of both thermafil obturators and cold laterally compacted Gutta-Percha. *Journal of Endodontics.* **28 (9).** 638-642.

Schäfer, E. & Zapke, K. (2000). A comparative scanning electron microscopic investigation of the efficacy of manual and automated instrumentation of root canals. *Journal of Endodontics.* **26 (11).** 660-664.

Schmalz, G. & Arenholt-Bindslev, D. (2009). Root canal filling materials. *In Biocompatibility of dental materials,* 1st edn. p.187-213. Verlag Berlin Heidelberg: Springer.

Schwartz, S. (2005). Endodontics, Volume I. *Journal of Endodontics.* **31 (8).** 624.

Sen, B. H., Erturk, O. & Piskin, B. (2009). The effect of different concentrations of EDTA on instrumented root canal walls. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **108 (4).** 622-627.

Sevimay, S. & Dalat, D. (2003). Evaluation of penetration and adaptation of three different sealers: a SEM study. *Journal of Oral Rehabilitation.* **30 (9).** 951-955.

Shen, Y. & Haapasalo, M. (2008). Three-dimensional analysis of cutting behavior of nickel-titanium rotary instruments by microcomputed tomography. *Journal of Endodontics.* **34 (5).** 606-610.

Shipper, G., Grossman, E., Botha, A. & Cleaton-Jones, P. (2004a). Marginal adaptation of mineral trioxide aggregate (MTA) compared with amalgam as a root-end filling material: a low-vacuum (LV) versus high-vacuum (HV) SEM study. *International Endodontic Journal.* **37 (5).** 325-336.

Shipper, G., Ørstavik, D., Teixeira, F. & Trope, M. (2004b). An evaluation of microbial leakage in roots filled with a thermoplastic synthetic polymer-based root canal filling material (Resilon). *Journal of Endodontics.* **30 (5).** 342-347.

Shipper, G., Teixeira, F. B., Arnold, R. R. & Trope, M. (2005). Periapical inflammation after coronal microbial inoculation of dog roots filled with gutta-percha or Resilon. *Journal of Endodontics.* **31 (2).** 91-96.

Shrestha, D., Wei, X., Wu, W. C. & Ling, J. Q. (2010). Resilon: a methacrylate resin-based obturation system. *Journal of Dental Sciences.* **5 (2).** 47-52.

Silver, G., Love, R. & Purton, D. (1999). Comparison of two vertical condensation obturation techniques: Touch'n Heat modified and System B. *International Endodontic Journal.* **32 (4).** 287-295.

Siqueira, J. & Rôças, I. (2008). Clinical implications and microbiology of bacterial persistence after treatment procedures. *Journal of Endodontics.* **34 (11).** 1291-1301.

Siqueira Jr, J. (2001). Aetiology of root canal treatment failure: why well treated teeth can fail. *International Endodontic Journal.* **34 (1).** 1-10.

Siqueira Jr, J., Rôas, I., Santos, S., Lima, K., Magalhães, F. & De Uzeda, M. (2002). Efficacy of instrumentation techniques and irrigation regimens in reducing the bacterial population within root canals. *Journal of Endodontics.* **28 (3).** 181-184.

Siqueira Jr, J. F., Lima, K. C., Magalhaes, F. a. C., Lopes, H. P. & De Uzeda, M. (1999). Mechanical reduction of the bacterial population in the root canal by three instrumentation techniques. *Journal of Endodontics.* **25 (5).** 332-335.

Sjögren, U., Sundqvist, G. & Nair, P. (1995). Tissue reaction to gutta percha particles of various sizes when implanted subcutaneously in guinea pigs. *European journal of oral sciences.* **103 (5).** 313-321.

Skidmore, L., Berzins, D. & Bahcall, J. (2006). An in vitro comparison of the intraradicular dentin bond strength of Resilon and gutta-percha. *Journal of Endodontics.* **32 (10).** 963-966.

Solano, F., Hartwell, G. & Appelstein, C. (2005). Comparison of apical leakage between immediate versus delayed post space preparation using AH Plus sealer. *Journal of Endodontics.* **31 (10).** 752-754.

Sousa, C. J. A., Montes, C. R. M., Pascon, E. A., Loyola, A. M. & Versiani, M. A. (2006). Comparison of the intraosseous biocompatibility of AH Plus, EndoREZ, and Epiphany root canal sealers. *Journal of Endodontics.* **32 (7).** 656-662.

Souza, E., Pappen, F., Shemesh, H., Bonanato-Estrela, C. & Bonetti-Filho, I. (2009a). Reliability of assessing dye penetration along root canal fillings using methylene blue. *Australian Endodontic Journal.* **35 (3).** 158-163.

Souza, E., Wu, M., Van Der Sluis, L., Leonardo, R., Bonetti-Filho, I. & Wesselink, P. (2009b). Effect of filling technique and root canal area on the percentage of gutta-percha in laterally compacted root fillings. *International Endodontic Journal.* **42.** 719-726.

Souza, R. (2006). The importance of apical patency and cleaning of the apical foramen on root canal preparation. *Brazilian Dental Journal.* **17.** 6-9.

Spangberg, L. & Haapasalo, M. (2002). Rationale and efficacy of root canal medicaments and root filling materials with emphasis on treatment outcome. *Endodontic Topics.* **2 (1).** 35-58.

Steier, L., Figueiredo, J. a. P. & Belli, S. (2010). Comparison of the interface dentin-endodontic sealer using two SEM magnifications. *Revista Odonto Ciência.* **25 (3).** 296-299.

Stevens, R. W., Strother, J. M. & Mcclanahan, S. B. (2006). Leakage and sealer penetration in smear-free dentin after a final rinse with 95% ethanol. *Journal of Endodontics.* **32 (8).** 785-788.

Stratton, R., Apicella, M. & Mines, P. (2006). A fluid filtration comparison of gutta-percha versus Resilon, a new soft resin endodontic obturation system. *Journal of Endodontics.* **32 (7).** 642-645.

Taha, N., Ozawa, T. & Messer, H. (2010). Comparison of Three Techniques for Preparing Oval-shaped Root Canals. *Journal of Endodontics.* **36 (3).** 532-535.

Tani-Ishii, N. & Teranaka, T. (2003). Clinical and radiographic evaluation of root-canal obturation with obtura II. *Journal of Endodontics.* **29 (11).** 739-742.

Tanomaru-Filho, M., Bier, C., Tanomaru, J. & Barros, D. (2007a). Evaluation of the thermoplasticity of different gutta-percha cones and the TC system. *Journal of Applied Oral Science.* **15.** 131-134.

Tanomaru-Filho, M., Silveira, G. F., Tanomaru, J. M. G. & Bier, C. a. S. (2007b). Evaluation of the thermoplasticity of different gutta percha cones and Resilon®. *Australian Endodontic Journal.* **33 (1).** 23-26.

Tasdemir, T., Yesilyurt, C., Ceyhanli, K., Celik, D. & Er, K. (2009). Evaluation of apical filling after root canal filling by 2 different techniques. *Journal (Canadian Dental Association).* **75 (3).** 201a-201d.

Tay, F., Loushine, R., Monticelli, F., Weller, R., Breschi, L., Ferrari, M. & Pashley, D. (2005a). Effectiveness of resin-coated gutta-percha cones and a dual-cured, hydrophilic methacrylate resin-based sealer in obturating root canals. *Journal of Endodontics.* **31 (9).** 659-664.

Tay, F., Loushine, R., Weller, R., Kimbrough, W., Pashley, D., Mak, Y., Shirley Lai, C., Raina, R. & Williams, M. (2005b). Ultrastructural evaluation of the apical seal in roots filled with a polycaprolactone-based root canal filling material. *Journal of Endodontics.* **31 (7).** 514-519.

Tay, F. R., Loushine, R. J., Lambrechts, P., Weller, R. N. & Pashley, D. H. (2005c). Geometric factors affecting dentin bonding in root canals: a theoretical modeling approach. *Journal of Endodontics.* **31 (8).** 584-589.

Teixeira, C. S., Alfredo, E., Thomé, L. H. C., Gariba-Silva, R., Silva-Sousa, Y. T. C. & Sousa-Neto, M. D. (2009). Adhesion of an endodontic sealer to dentin and gutta-percha: shear and push-out bond strength measurements and SEM analysis. *Journal of Applied Oral Science.* **17 (2).** 129-135.

Tidswell, H., Saunders, E. & Saunders, W. (1994). Assessment of coronal leakage in teeth root filled with gutta-percha and a glass ionomer root canal sealer. *International Endodontic Journal.* **27 (4).** 208-212.

Timpawat, S., Amornchat, C. & Trisuwan, W. (2001a). Bacterial coronal leakage after obturation with three root canal sealers. *Journal of Endodontics.* **27 (1).** 36-39.

Timpawat, S., Harnirattisai, C. & Senawongs, P. (2001b). Adhesion of a glass-ionomer root canal sealer to the root canal wall. *Journal of Endodontics.* **27 (3).** 168-171.

Torabinejad, M., Smith, P., Kettering, J. & Pitt Ford, T. (1995). Comparative investigation of marginal adaptation of mineral trioxide aggregate and other commonly used root-end filling materials. *Journal of Endodontics.* **21 (6).** 295-299.

Torabinejad, M., Ung, B. & Kettering, J. D. (1990). In vitro bacterial penetration of coronally unsealed endodontically treated teeth. *Journal of Endodontics.* **16 (12).** 566-569.

Torabinejad, M. & Walton, R. (2002). Cleaning and Shaping. *In principles and practice of Endodontics*, 3rd edn. p.206-238. Philadelphia: WB Saunders.

Torabinejad, M. & Walton, R. (2009). Obturation. *In Endodontics: principles and practice*, 4th edn. p.298-321.WB Saunders Co.

Tronstad, L. (2008). Endodontic materials. *In clinical endodontics*, 3rd edn. p.167-177. New York: Thieme Medical Publisher.

Tsesis, I., Amdor, B., Tamse, A. & Kfir, A. (2008). The effect of maintaining apical patency on canal transportation. *International Endodontic Journal.* **41 (5).** 431-435.

Uppal, M. & Kaur, G. (2011). Comparative evaluation of sealing ability of the lateral condensation and the protaper single cone obturation technique after canal preparation by the protaper niti rotary system-An In Vitro Study. *The Journal of the Indian Dental Association.* **5 (3).** 338-340.

Van Der Borden, W., Wu, M. & Wesselink, P. (2010). Percentages of Gutta-Percha-filled Canal Area Observed after Increased Apical Enlargement. *Journal of Endodontics.* **36 (1).** 139-142.

Venturi, M., Di Lenarda, R., Prati, C. & Breschi, L. (2005). An in vitro model to investigate filling of lateral canals. *Journal of Endodontics.* **31 (12).** 877-881.

Venturi, M., Pasquantonio, G., Falconi, M. & Breschi, L. (2002). Temperature change within gutta-percha induced by the System-B Heat Source. *International Endodontic Journal.* **35 (9).** 740-746.

Ver ssimo, D. & Vale, M. (2006). Methodologies for assessment of apical and coronal leakage of endodontic filling materials: a critical review. *Journal of Oral Science.* **48 (3).** 93-98.

Vijay, R. & Indira, R. (2009). Effect of glass-ionomer cement as an intra-canal barrier in post space prepared teeth: An in vitro study. *Journal of Conservative Dentistry.* **12 (2).** 65-68.

Violich, D. & Chandler, N. (2009). The smear layer in endodontics–a review. *International Endodontic Journal.* **43.** 2-15.

Walmsley, A. D., Walsh, T. F., Lumley, P. J., Burke, F. J. T., Shortall, A. C. C. & Hayes-Hall, R. (2002). Managment of pulpal and periradicular diseaese. *In Restorative Dentistry*, 1st edn. p.79-105. Churchill Livingstone: Elsevier

Walton, R. & Torabinejad, M. (2002). Obturation. *In Principles and practice of endodontics*, 3rd edn. p.239-267. Philadelphia: WB Saunders Company.

Wang, X., Sun, Y., Kimura, Y., Kinoshita, J., Ishizaki, N. & Matsumoto, K. (2005). Effects of diode laser irradiation on smear layer removal from root canal walls and apical leakage after obturation. *Photomedicine and Laser Surgery.* **23 (6).** 575-581.

Wedding, J., Brown, C., Legan, J., Moore, B. & Vail, M. (2007). An in vitro comparison of microleakage between Resilon and gutta-percha with a fluid filtration model. *Journal of Endodontics.* **33 (12).** 1447-1449.

Wiemann, A. H. & Wilcox, L. R. (1991). In vitro evaluation of four methods of sealer placement. *Journal of Endodontics.* **17 (9).** 444-447.

Weine, F. (2004). Canal filling with semisolid materials. *In Endodontic therapy*, 6th edn. p.266-313. CV Mosby, St. *Louis (MO).*

Whitworth, J. (2005). Methods of filling root canals: principles and practices. *Endodontic Topics.* **12 (1).** 2-24.

Whitworth, J. & Baco, L. (2005). Coronal leakage of sealer-only backfill: an in vitro evaluation. *Journal of Endodontics.* **31 (4).** 280-282.

Wiene, F. (2004). Basis for successful endodontics. *In Endodontic therapy,* 6th ed. p.1-23. *St. Louis: Mosby, Inc*.

William, J. (2002). Endodontic materials. *In Dental Materials and Their Selection*, 3rd edn. p.503-513. Quintessence Publishing Co, Inc.

Wu, M., Barkis, D., Roris, A. & Wesselink, P. (2002). Does the first file to bind correspond to the diameter of the canal in the apical region? *International Endodontic Journal.* **35 (3).** 264-267.

Wu, M., Bud, M. & Wesselink, P. (2009). The quality of single cone and laterally compacted gutta-percha fillings in small and curved root canals as evidenced by bidirectional radiographs and fluid transport measurements. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*. **108 (6).** 946-951.

Wu, M., De Groot, S., Van Der Sluis, L. & Wesselink, P. (2003a). The effect of using an inverted master cone in a lateral compaction technique on the density of the gutta-percha fill. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology & Endodontology.* **96 (3).** 345-350.

Wu, M., Kašťáková, A. & Wesselink, P. (2001). Quality of cold and warm gutta-percha fillings in oval canals in mandibular premolars. *International Endodontic Journal.* **34 (6).** 485-491.

Wu, M. K., Kontakiotis, E. & Wesselink, P. (1998). Decoloration of 1% methylene blue solution in contact with dental filling materials. *Journal of dentistry.* **26 (7).** 585-589.

Wu, M., Van Der Sluis, L., Ardila, C. & Wesselink, P. (2003b). Fluid movement along the coronal two-thirds of root fillings placed by three different gutta-percha techniques. *International Endodontic Journal.* **36 (8).** 533-540.

Wu, M., Van Der Sluis, L. & Wesselink, P. (2006). A 1-year follow-up study on leakage of single-cone fillings with RoekoRSA sealer. *Oral surgery, oral medicine, oral pathology, oral radiology, and endodontology.* **101 (5).** 662-667.

Wu, M. & Wesselink, P. (1993). Endodontic leakage studies reconsidered. Part I. Methodology, application and relevance. *International Endodontic Journal.* **26 (1).** 37-43.

Wu, M. K., Özok, A. & Wesselink, P. (2000). Sealer distribution in root canals obturated by three techniques. *International Endodontic Journal.* **33 (4).** 340-345.

Yang, S. E., Baek, S. H., Lee, W. C., Kum, K. Y. & Bae, K. S. (2007). In vitro evaluation of the sealing ability of newly developed calcium phosphate-based root canal sealer. *Journal of Endodontics.* **33 (8).** 978-981.

Yared, G. (2008). Canal preparation using only one Ni-Ti rotary instrument: preliminary observations. *International Endodontic Journal.* **41 (4).** 339-344.

Yilmaz, Z., Deniz, D., Ozcelik, B., Sahin, C., Cimilli, H., Cehreli, Z. & Kartal, N. (2009a). Sealing efficiency of BeeFill 2in1 and System B/Obtura II versus single-cone and cold lateral compaction techniques. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **108 (6).** 51-55.

Yilmaz, Z., Tuncel, B., Ozdemir, H. & Serper, A. (2009b). Microleakage evaluation of roots filled with different obturation techniques and sealers. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **108 (1).** 124-128.

Young, G., Parashos, P. & Messer, H. (2007). The principles of techniques for cleaning root canals. *Australian Dental Journal.* **52 (1).** 52-63.

Yücel, A. (2006). Effects of different root canal obturation techniques on bacterial penetration. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **102 (4).** 88-92.

Zahed, M. (2008). Sealing Ability of MTA Cements as Orthograde Root Filling Materials. *Pesq Bras Odontoped Clin Integr,João Pessoa.* **8 (3).** 267-270.

Zehnder, M. (2006). Root canal irrigants. *Journal of Endodontics.* **32 (5).** 389-398.

Zhang, W., Li, Z. & Peng, B. (2009). Assessment of a new root canal sealer's apical sealing ability. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology.* **107 (6).** 79-82.

Zhu, Y., Wang, X. & Xu, X. (1994). Study on the apical sealability of warm lateral condensation techniques. *Shanghai kou qiang yi xue= Shanghai journal of stomatology.* **3 (1).** 27-29.

Zmener, O., Pameijer, C., Kokubu, G. & Grana, D. (2010). Subcutaneous Connective Tissue Reaction to Methacrylate Resin–based and Zinc Oxide and Eugenol Sealers. *Journal of Endodontics.* **36 (9).** 1574-1579.

Zmener, O., Banegas, G. & Pameijer, C. H. (2005a). Bone tissue response to a methacrylate-based endodontic sealer: a histological and histometric study. *Journal of Endodontics.* **31 (6).** 457-459.

Zmener, O., Pameijer, C., Serrano, S., Vidueira, M. & Macchi, R. (2008). Significance of moist root canal dentin with the use of methacrylate-based endodontic sealers: an in vitro coronal dye leakage study. *Journal of Endodontics.* **34 (1).** 76-79.

Zmener, O. & Pameijer, C. H. (2007). Clinical and radiographical evaluation of a resin-based root canal sealer: a 5-year follow-up. *Journal of Endodontics.* **33 (6).** 676-679.

Zmener, O., Pameijer, C. H. & Macri, E. (2005b). Evaluation of the apical seal in root canals prepared with a new rotary system and obturated with a methacrylate based endodontic sealer: an in vitro study. *Journal of Endodontics.* **31 (5).** 392-395.