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KNOWLEDGE, AWARENESS AND PRACTICE SURVEY ON THE USE OF CENTION N FOR RESTORING CLASS 1 AND CLASS 2 CAVITIES AMONG GENERAL PRACTITIONERS

Srivarsha Ranjeet[1], Dr Sanyukta Singh*[2]
[1]Saveetha Dental College and Hospital, Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu, India
[2]Senior Lecturer, Department of Conservative Dentistry and Endodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, Tamil Nadu, India
E-mail: 152001100.sdc@saveetha.com, sanyuktasingh.sdc@saveetha.com

ABSTRACT:
INTRODUCTION: Cention N, an powder-liquid filling material belonging to the family of Alkasite material developed by the dental material manufacture" ivoclar vivadent" with the usage of filler technology as an alternative restorative material for the convention amalgam material.The current study focuses on analysing the awareness among the dentists regarding the use of Cention N as a restorative material for class 1 and class 2 cavities. **MATERIALS AND METHOD:** An online survey was conducted with a self structured questionnaire comprising 10 questions.The questionnaire was designed using the online survey platform google forms and the link was circulated through the social networking platforms to the participants. The results were analysed and with the collected responses a descriptive statistical test was performed using the statistical software "SPSS version 27" and the result was represented in the pie chart form and bar graphs.**RESULTS:** The current study results depicts the association by chi square between the speciality and knowledge level regarding the properties of Cention N. The association test performed in the study clearly depicts that the results obtained were statistically significant because of the p value 0.012. It is evident and clear from this study that majority of the participants were aware about the benefits, properties of the alkasite restorative material Cention N. **CONCLUSION:** The study results within the limitation depicted that there is adequate awareness,knowledge on all aspects with regards to the properties and uses of CentionN.

KEYWORDS: Knowledge,Awareness,Occupation,Innovative Technology.

INTRODUCTION:

Cention N, an powder-liquid filling material belonging to the family of Alkasite material developed by the dental material manufacture" ivoclar vivadent" with the usage of filler technology as an alternative restorative material for the convention amalgam material with better properties to meet out the current needs in the modern filling principles followed in dentistry(1,2). Flexural strength is a measure of the material's ability to resist fracture, cention N offers a high flexural strength of around 100 PKA compared to the other materials with other features such as 100% volume restoration, 100% life-like appearance(3,4). The high flexural strength of cention N plays an important role in making the newly developed Alkasite restorative material cention N as an reliable composite for restoring deciduous tooth as well as for the permanent restoration of the class I,II,V cavities(5).Monomer plays an important role in imparting high mechanical properties to a material,in such a case the alkasite material cention N liquid consist of four different dimethacrylates such as UDMA,DCP,aromatic-UDMA,PEG-400 DMA making it exhibit properties such as high mechanical strength with low absorption rate, hand mixing feature because of its low-viscosity and finally the ability to wet tooth substrate which adapts the material better to the smear layer(6).Cention N being an dual curing material contains filler technology being used to impart adequate strength to withstand the stress,strains of the oral cavity, apart from filler technology cention N also contains polymerization technology also which uses hydro peroxide instead of the commonly used benzoyl peroxide which impacts greater temperature-resistance(7).Cention N additionally offers benefits such such low polymerization shrinkage,low shrinking force,visibility on x rays because of the ytterbium fluoride filter, reduction in the overall setting time(8). Our team has extensive knowledge and research experience that has translated into high quality publications(9–18),(19–22),(23–30)(31). The present study aims at analysing the awareness among the dentists regarding the use of Cention N as a restorative material for class 1 and class 2 cavities and the study also focuses on analysing the benefits of cention N when compared to other material within the limitations among the general practitioners.

MATERIALS AND METHODS:

An online survey was conducted with a self-structured questionnaire with a sample size of 100 participants comprising the general practitioner. The questionnaire consist of two parts, the first part consist questions related to socioeconomic data, questions related to recent findings or updates regarding the cention N material and the second part comprise questions questions related to facts and questions concerned with understanding the benefits of cention N .The participants were given a short introduction about the newly developed alkasite material and its importance in the modern dentistry. The questionnaire was validated in the standard manner.The questionnaire were reviewed and ethically approved by the Scientific Review Board, Saveetha Dental College,Chennai and measures such as selection of participants randomly,steps to prevent asking irrelevant questions to the participants,placing restrictions over participant population and age groups are taken to minimise the bias occurring in sampling.The questionnaire was designed using the online survey platform"google forms". Descriptive analysis tests such as the chi square test were carried out using the statistical software "SPSS SOFTWARE VERSION 20" and the final results of the survey were represented in the form of pie charts.

RESULTS:

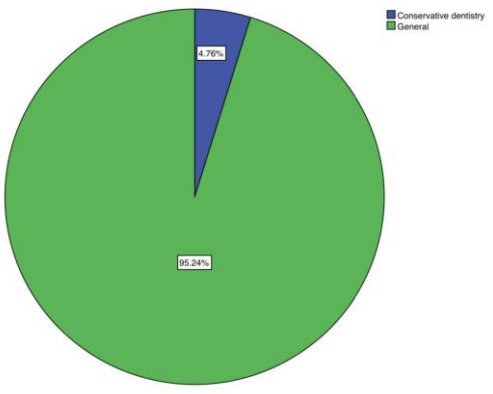

Figure 1: The pie chart depicts the ratio of general practitioners and specialists in the overall survey population, 95.24% of the respondents were general practitioners(green) and around 4.76% of the respondents were from the conservative dentistry speciality(blue).

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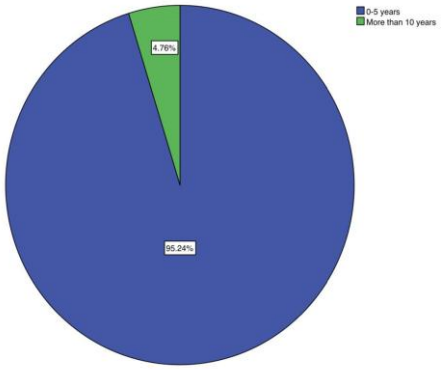

Figure 2: The pie chart depict the experience of the dentists who took up this survey, 95.24% of the respondents are in their practice for around 5 years(blue) and the remaining 4.76% of the dentist have experience of more than 10 years in the field of dentistry(green).

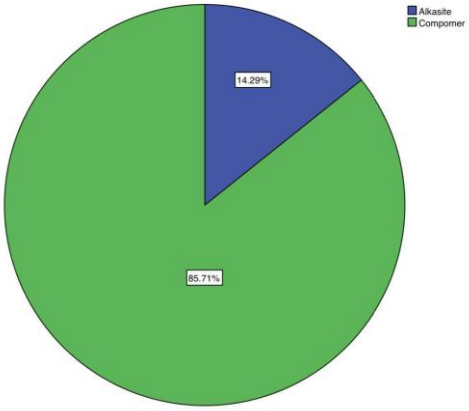

Figure 3: The pie chart depicts the knowledge of the participants about the material
Cention N,14.29 % of the people answered that Cention N belongs to the alkasite group (blue)around 85.71% of the respondents answered that Cention N belongs to the compomer(green).

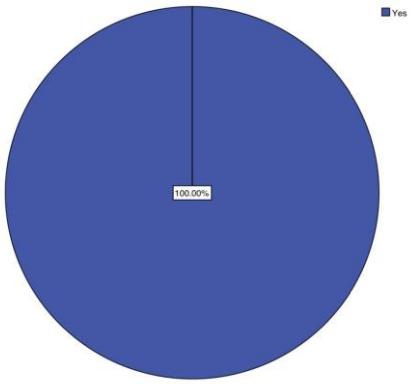

Figure 4:The pie chart depicts the ratio of participants who are currently using cention N as a restorative material for class 1 and class 2. The entire 100% of the population use cention N as the restorative material(blue).

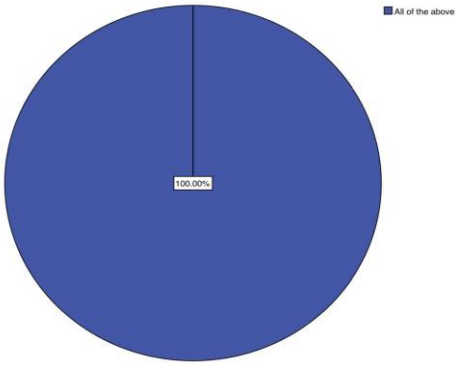

Figure 5: The pie chart depicts the property responsible for making Cention N as an alternative restorative material of amalgam,100% of the population believe properties like Esthetics,Alkaline filter,Durability in dual curing to be reason behind Cention N being an alternative to amalgam(blue).

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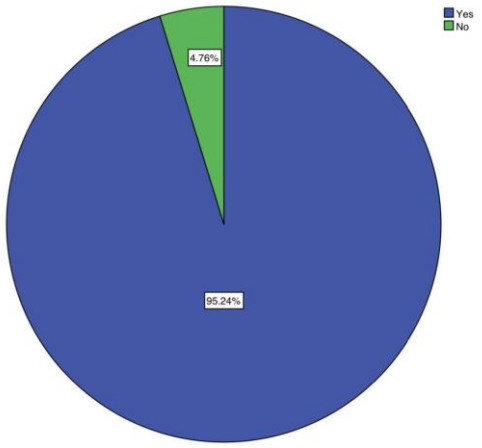

Figure 6: The pie chart depicts the awareness among the participants about the low polymerisation shrinkage property of Cention N, 95.24% of the participants are aware (blue) and the remaining 4.76% of the participants are not aware(green).

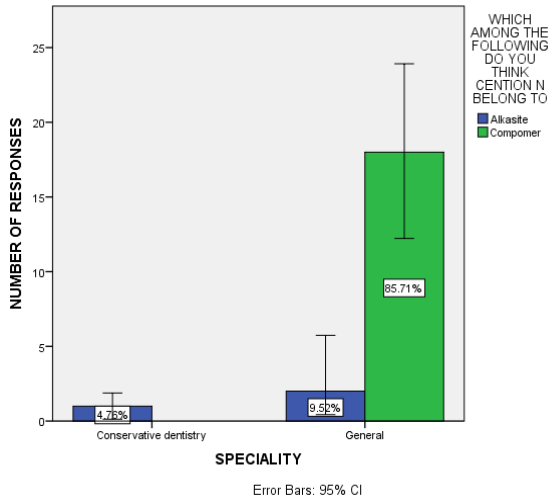

Figure 7: Bar graph representing the association by chi square test between speciality and the knowledge regarding the property Cention N. X axis represents the speciality and Y axis represents the frequency of responses.Blue colour denotes the alkasite group and green colour denotes the compomer group. Majority of the general dental participants believe that cention N belongs to the compomer but the conservative dentist believe that the material belongs to the alkasite material. P value=0.012,p value>0.05 hence statistically significant.

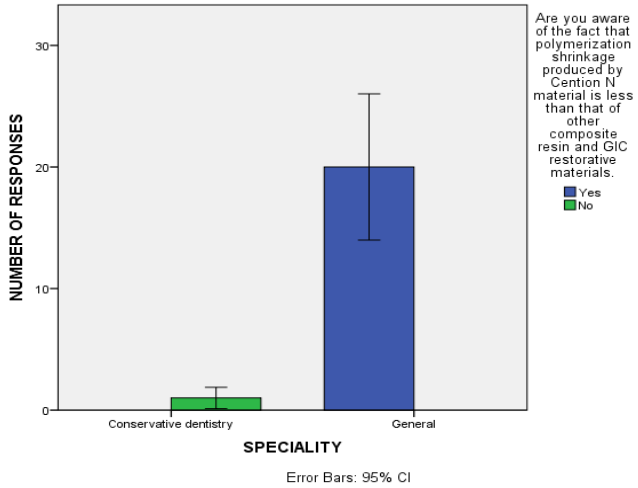

Figure 8: Bar graph representing the association by chi square test between speciality and the knowledge regarding the property Cention N. X axis represents the speciality and the Y axis represents the frequency of responses. Blue colour depicts the ratio of general practitioner participants who were aware about the polymerisation shrinkage of Cention N, green colour depict the ratio of conservative dentist who were not aware about the polymerisation shrinkage of cention N.The statistical difference between the groups was insignificant(chi square test, p value=0.819).

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DISCUSSION:

The results of figure 1 depict that 95.24% of the respondents were general practitioners and the remaining 4.76% of the respondents were from the conservative dentistry speciality.Figure 2 represent the experience of the dentists who took up this survey, 95.24% of the respondents are in their practice for around 5 years and the remaining 4.76% of the dentist have experience of more than 10 years in the field of dentistry.Figure 3 depicts the knowledge of the participants regarding the material Cention N,14.29 % of the people answered that Cention N belongs to the alkasite group and around 85.71% of the respondents answered that Cention N belongs to the compomer.Figure 4of the study depicts the ratio of participants who are currently using cention N as a restorative material for class 1 and class 2, it was evident that 100% of the population currently also use cention N as the restorative material.Figure 6 of the survey depicts the property responsible for making Cention N as an alternative restorative material of amalgam,100% of the population believe properties like Esthetics,Alkaline filter,Durability in dual curing to be reason behind Cention N being an alternative to amalgam. The results of figure 6 depicts regarding the awareness among the participants about the low polymerisation shrinkage property of Cention N, it is clear that around 95.24% of the participants are aware about the property and the remaining 4.76% are not aware.Figure 7 of the study represents the association by chi square test between speciality and the knowledge regarding the property Cention N. X axis represents the speciality and Y axis represents the frequency of responses. p value=0.012,p value>0.05 hence statistically significant.Figure 8 of the study represents the association by chi square test between speciality and the knowledge regarding the property Cention N. X axis represents the speciality and the Y axis represents the frequency of responses. p value=0.819,p value>0.05 hence statistically insignificant.

The previous study performed by Gopalaswamy on analysing the knowledge and awareness among the dental population regarding the usage of cention N as the alternative material to amalgam stated that around 57% of the respondents are aware about the usage of cention N but among them only 20 people practised cention N in their practice(32).The results of figure 3,5 of the current study state that the awareness level of the participants has increased when compared to the previous study results,but both the study findings are similar to an extent.The low shrinkage property of cention N was analysed in the previous study conducted by Naz proved the fact when compared the results of figure 6 of the current study matches with the findings of the previous studies (33).

So, the relationship between the properties and the benefits associated with the usage of alkasite restorative material is specifically demonstrated in the current study.The present study possesses limitations such as the small sample size, homogeneous population and the study deals only with one particular parameter. Further studies with a large sample size, focus on detail concerned with many parameters like compressive strength analysis, colour stability analysis, surface roughness analysis should be done to significantly demonstrate the effectiveness and benefit associated with the usage of cention N compared to other restorative materials.

CONCLUSION:

Within the limitations of the present survey it can be concluded that around 60% of the total participants were aware about the properties, benefits and demerits associated with the usage of Cention N, and around 20% of them use Cention N in their daily practice as a restorative material.

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AUTHOR CONTRIBUTION:

Ms. Srivarsha Ranjeet: Literature search, survey, data collection, analysis, manuscript writing.
Dr.Sanyukta Singh : Study design, data verification, manuscript, drafting, manuscript correcting.

CONFLICT OF INTEREST:

The authors declare that there are no conflicts of interest in the present study.

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REFERENCES:

1. M S, Shailendra M, Selvakumar G, Diwanji P, Indi S, Hambire A. Comparative Evaluation of Apical Seal using Cention N and Mineral Trioxide Aggregate as Retrograde Filling Material [Internet]. Vol. 4, RUHS Journal of Health Science. 2019. p. 205. Available from: http://dx.doi.org/10.37821/ruhsjhs.4.4.2019.205-209
2. Verma V, Mathur S, Sachdev V, Singh D. Evaluation of compressive strength, shear bond strength, and microhardness values of glass-ionomer cement Type IX and Cention N [Internet]. Vol. 23, Journal of Conservative Dentistry. 2020. p. 550. Available from: http://dx.doi.org/10.4103/jcd.jcd_109_19
3. Mohammadi N, Kimyai S, Ghavami Lahij Y, Bahari M, Ajami AA, Abed Kahnamouei M, et al. Correction to: Comparison of the effect of bleaching with 15% carbamide peroxide and 35% hydrogen peroxide on flexural strength of Cention N in self-cured and dual-cured polymerization modes. J Dent Res Dent Clin Dent Prospects. 2020 Dec 2;14(4):262.
4. Agarwal M, Singh G, Qureshi R, Singh SK, Mishra A, Khurana N. Comparative Evaluation of Mechanical Properties of Cention N with Conventionally used Restorative Materials—An In Vitro Study [Internet]. Vol. 8, International Journal of Prosthodontics and Restorative Dentistry. 2018. p. 120–4. Available from: http://dx.doi.org/10.5005/jp-journals-10019-1219
5. Sharma A, Babaji P, Sujith R, Yadav TG, Pitalia D, Apoorva K. Comparative Evaluation of Mechanical and Microleakage Properties of Cention-N, Composite, and Glass Ionomer Cement Restorative Materials [Internet]. Vol. 21, The Journal of Contemporary Dental Practice. 2020. p. 691–5. Available from: http://dx.doi.org/10.5005/jp-journals-10024-2837
6. Dodiya PV, Parekh V, Gupta MS, Patel N, Shah M. Clinical evaluation of Cention–N and nano hybrid composite resin as a restoration

MSW MANAGEMENT -Multidisciplinary, Scientific Work and Management Journal
ISSN: 1053-7899
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of non-carious cervical lesion [Internet]. Vol. 7, Journal of Dental Specialities. 2019. p. 3–5. Available from: http://dx.doi.org/10.18231/j.jds.2019.001
7. Nagesh J, Setty A, Marigowda J, Shivanna A, Paluvary S, Ashwathappa G. Comparative evaluation of surface roughness of novel resin composite Cention N with Filtek Z350 XT: In vitro study [Internet]. Vol. 7, International Journal of Oral Care and Research. 2019. p. 15. Available from: http://dx.doi.org/10.4103/injo.injo_9_19
8. Paul S, Raina A, Kour S, Mishra S, Bansal M, Sengupta A. Comparative evaluation of fluoride release and re-release and recharge potential of Zirconomer Improved and Cention [Internet]. Vol. 23, Journal of Conservative Dentistry. 2020. p. 402. Available from: http://dx.doi.org/10.4103/jcd.jcd_222_20
9. Muthukrishnan L. Imminent antimicrobial bioink deploying cellulose, alginate, EPS and synthetic polymers for 3D bioprinting of tissue constructs. Carbohydr Polym. 2021 May 15;260:117774.
10. PradeepKumar AR, Shemesh H, Nivedhitha MS, Hashir MMJ, Arockiam S, Uma Maheswari TN, et al. Diagnosis of Vertical Root Fractures by Cone-beam Computed Tomography in Root-filled Teeth with Confirmation by Direct Visualization: A Systematic Review and Meta-Analysis. J Endod. 2021 Aug;47(8):1198–214.
11. Chakraborty T, Jamal RF, Battineni G, Teja KV, Marto CM, Spagnuolo G. A Review of Prolonged Post-COVID-19 Symptoms and Their Implications on Dental Management. Int J Environ Res Public Health [Internet]. 2021 May 12;18(10). Available from: http://dx.doi.org/10.3390/ijerph18105131
12. Muthukrishnan L. Nanotechnology for cleaner leather production: a review. Environ Chem Lett. 2021 Jun 1;19(3):2527–49.
13. Teja KV, Ramesh S. Is a filled lateral canal - A sign of superiority? J Dent Sci. 2020 Dec;15(4):562–3.
14. Narendran K, Jayalakshmi, Ms N, Sarvanan A, Ganesan S A, Sukumar E. Synthesis, characterization, free radical scavenging and cytotoxic activities of phenylvilangin, a substituted dimer of embelin. ijps [Internet]. 2020;82(5). Available from: https://www.ijpsonline.com/articles/synthesis-characterization-free-radical-scavenging-and-cytotoxic-activities-of-phenylvilangin-a-substituted-dimer-of-embelin-4041.html
15. Reddy P, Krithikadatta J, Srinivasan V, Raghu S, Velumurugan N. Dental Caries Profile and Associated Risk Factors Among Adolescent School Children in an Urban South-Indian City. Oral Health Prev Dent. 2020 Apr 1;18(1):379–86.
16. Sawant K, Pawar AM, Banga KS, Machado R, Karobari MI, Marya A, et al. Dentinal Microcracks after Root Canal Instrumentation Using Instruments Manufactured with Different NiTi Alloys and the SAF System: A Systematic Review. NATO Adv Sci Inst Ser E Appl Sci. 2021 May 28;11(11):4984.
17. Bhavikatti SK, Karobari MI, Zainuddin SLA, Marya A, Nadaf SJ, Sawant VJ, et al. Investigating the Antioxidant and Cytocompatibility of Mimusops elengi Linn Extract over Human Gingival Fibroblast Cells. Int J Environ Res Public Health [Internet]. 2021 Jul 4;18(13). Available from: http://dx.doi.org/10.3390/ijerph18137162
18. Karobari MI, Basheer SN, Sayed FR, Shaikh S, Agwan MAS, Marya A, et al. An In Vitro Stereomicroscopic Evaluation of Bioactivity between Neo MTA Plus, Pro Root MTA, BIODENTINE & Glass Ionomer Cement Using Dye Penetration Method. Materials [Internet]. 2021 Jun 8;14(12). Available from: http://dx.doi.org/10.3390/ma14123159
19. Rohit Singh T, Ezhilarasan D. Ethanolic Extract of Lagerstroemia Speciosa (L.) Pers., Induces Apoptosis and Cell Cycle Arrest in HepG2 Cells. Nutr Cancer. 2020;72(1):146–56.
20. Ezhilarasan D. MicroRNA interplay between hepatic stellate cell quiescence and activation. Eur J Pharmacol. 2020 Oct 15;885:173507.
21. Romera A, Peredpaya S, Shparyk Y, Bondarenko I, Mendonça Bariani G, Abdalla KC, et al. Bevacizumab biosimilar BEVZ92 versus reference bevacizumab in combination with FOLFOX or FOLFIRI as first-line treatment for metastatic colorectal cancer: a multicentre, open-label, randomised controlled trial. Lancet Gastroenterol Hepatol. 2018 Dec;3(12):845–55.
22. Raj R K, D E, S R. β-Sitosterol-assisted silver nanoparticles activates Nrf2 and triggers mitochondrial apoptosis via oxidative stress in human hepatocellular cancer cell line. J Biomed Mater Res A. 2020 Sep;108(9):1899–908.
23. Vijayashree Priyadharsini J. In silico validation of the non-antibiotic drugs acetaminophen and ibuprofen as antibacterial agents against red complex pathogens. J Periodontol. 2019 Dec;90(12):1441–8.
24. Priyadharsini JV, Vijayashree Priyadharsini J, Smiline Girija AS, Paramasivam A. In silico analysis of virulence genes in an emerging dental pathogen A. baumannii and related species [Internet]. Vol. 94, Archives of Oral Biology. 2018. p. 93–8. Available from: http://dx.doi.org/10.1016/j.archoralbio.2018.07.001
25. Uma Maheswari TN, Nivedhitha MS, Ramani P. Expression profile of salivary micro RNA-21 and 31 in oral potentially malignant disorders. Braz Oral Res. 2020 Feb 10;34:e002.
26. Gudipaneni RK, Alam MK, Patil SR, Karobari MI. Measurement of the Maximum Occlusal Bite Force and its Relation to the Caries Spectrum of First Permanent Molars in Early Permanent Dentition. J Clin Pediatr Dent. 2020 Dec 1;44(6):423–8.
27. Chaturvedula BB, Muthukrishnan A, Bhuvaraghan A, Sandler J, Thiruvenkatachari B. Dens invaginatus: a review and orthodontic implications. Br Dent J. 2021 Mar;230(6):345–50.
28. S. SG, Sutharshan GS, S. G, Lakshmanan G. Knowledge and awareness about uses of fluoride among adults - a survey [Internet]. Vol. 11, International Journal of Research in Pharmaceutical Sciences. 2020. p. 1888–95. Available from: http://dx.doi.org/10.26452/ijrps.v11ispl3.3582
29. S SG, Sutharshan GS, Sasanka K. Awareness on possible Ayurvedic treatment to prevent Covid-19 - A survey [Internet]. Vol. 11, International Journal of Research in Pharmaceutical Sciences. 2020. p. 685–90. Available from: http://dx.doi.org/10.26452/ijrps.v11ispl1.3066
30. Knowledge And Awareness About India's Air Pollution Plummets Level In Covid19 Lockdown [Internet]. Vol. 12, International Journal of Pharmaceutical Research. 2020. Available from: http://dx.doi.org/10.31838/ijpr/2020.sp2.100
31. Kanniah P, Radhamani J, Chelliah P, Muthusamy N, Joshua Jebasingh Sathiya Balasingh E, Reeta Thangapandi J, et al. Green synthesis of multifaceted silver nanoparticles using the flower extract of Aerva lanata and evaluation of its biological and environmental applications. ChemistrySelect. 2020 Feb 21;5(7):2322–31.
32. Gopalasamy K, Ranjan M. Knowledge, Awareness and Perception Of Cention Being Used As A Replacement For Amalgam Restoration [Internet]. Vol. 11, International Journal of Research in Pharmaceutical Sciences. 2020. p. 7–12. Available from: http://dx.doi.org/10.26452/ijrps.v11i1.1777
33. Naz T, Post graduate-Department of Pedodontics and Preventive Dentistry, DivyaJyoti College of Dental Sciences and Research, Address-36 A, Road SB, Bd KC, et al. COMPARATIVE EVALUATION OF MICROLEAKAGE AND COMPRESSIVE STRENGTH OF GLASS IONOMER CEMENT TYPE IX, ZIRCONOMER IMPROVED AND CENTION N - AN IN VITRO STUDY [Internet]. Vol. 7, International Journal of Advanced Research. 2019. p. 921–31. Available from: http://dx.doi.org/10.21474/ijar01/9738

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