

Curriculum Vitae

Dr. Manohar Suresh Kugaji
PhD (Biotechnology)

Personal

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- Date of Birth : 27/09/1984
- Nationality : Indian
- Gender : Male
- Languages : English, Hindi, Marathi, Kannada

Research Interests

- Efficacy and cost effectiveness of Multiplex PCR for detecting oral Pathogens.
- Development of Loop mediated Isothermal amplification (LAMP) method for detecting various oral pathogens.
- Salivary and circulating exosome as a valuable tool for diagnosis of oral cancer.
- Oral Microbiology: Virulence studies of oral pathogens.
- Natural products for oral health

Academic Qualifications

- Ph.D. in Biotechnology- March 2022.
Visvesvaraya Technological University (VTU), Belagavi, Karnataka, India.

Title of PhD Work: "Evaluation of the prevalence of Gingipain and Fimbriae genotypes of *Porphyromonas gingivalis* in patients with Chronic Periodontitis and Healthy individuals".

Brief summary: Periodontal disease is a multifaceted, polymicrobial infectious disease of oral cavity. *Porphyromonas gingivalis* (*P. gingivalis*) is considered to play a major role in periodontal disease pathogenesis and is recognized as a keystone pathogen. The organism *P. gingivalis* possesses diverse virulence factors among which fimbriae and cysteine proteases (gingipains) are

most extensively studied for their role in providing pathogenic ability to *P. gingivalis*. We aimed to investigate the occurrence of gingipain and fimbriae genotypes of *P. gingivalis* and their association with clinical characteristics in patients with chronic periodontitis (CP) and healthy individuals (H). The study included total of 120 patients with chronic periodontitis (CP) and 120 apparently healthy subjects (H). The statistical analysis was performed by GraphPad Prism 5.1 (GraphPad Software, Inc., San Diego California, CA, USA). Results suggest that in CP patients, high prevalence of *P. gingivalis* revealed that *P. gingivalis* plays a major role in the etiopathogenesis of chronic periodontitis and also the level of *P. gingivalis* varies with disease condition. The severity of the disease condition increases with the incidence of *fimA* type II whereas *fimA* type I is associated with health condition. The *kgp-I* is associated with disease whereas one of the novel findings of this study is that presence of *kgp-II* signifies the health condition. It was found that *rgpA*, type A plays a significant role in bacterial colonization that could be through interaction with other colonizers and virulence agents.

- Master of Science (Biotechnology): 2006-2008 – Karnataka University, Dharwad (KUD).
First Class with Distinction
- B.Sc: 2003-2005 : G.S. Sc College, Belagavi (Karnataka University, Dharwad)
First Class with Distinction

Research projects

1. Evaluation of role of pigmented and non-pigmented Prevotella species in patients with chronic periodontitis and oral health: A culture based and molecular study. (RGUHS grant-Co-investigator)
2. Microbiota of early childhood caries before and after therapy: A Clinical, Microbiological and Molecular study. (RGUHS grant)
3. Oral Microbial Culture Bank and DNA library. (VGST-CISE Grant)
4. Identification of virulence factors of *Tannerella forsythia* in patients with chronic periodontitis using *in-vivo* induced antigen technology (ICMR grant).
5. Evaluation of the efficacy and cost effectiveness of Multiplex PCR in detecting *Tannerella forsythia*, *Porphyromonas gingivalis* and *Treponema denticola* in subjects with different periodontal status.
6. Genotypic characterization of *Porphyromonas gingivalis* species isolated from oral cavity (Microbiological study).

- 1) Ingalagi P, Bhat KG, Kulkarni RD, Kotrashetti VS, Kumbar V, **Kugaji M**. Detection and comparison of prevalence of Porphyromonas gingivalis through culture and Real Time-polymerase chain reaction in subgingival plaque samples of chronic periodontitis and healthy individuals. Journal of Oral and Maxillofacial Pathology: JOMFP. 2022 Apr;26(2):288.
- 2) Idate U, Bhat K, Kulkarni RD, Kotrashetti V, **Kugaji M**, Kumbar V. Comparison of culture and polymerase chain reaction–restriction fragment length polymorphism for identification of various Capnocytophaga species from subgingival plaque samples of healthy and periodontally diseased individuals. Journal of Oral and Maxillofacial Pathology: JOMFP. 2022 Apr;26(2):287.
- 3) Kumbar VM, Muddapur UM, Bhat KG, Shwetha HR, **Kugaji MS**, Peram MR, Dindawar S. Cancer stem cell traits in tumor spheres derived from primary laryngeal carcinoma cell lines. Contemporary Clinical Dentistry. 2021 Jul 1;12(3):247.
- 4) NS Priya, R Nayak, K Bhat, **M Kugaji**, K Vijayalakshmi, K Rao. Site specificity and expression profile of miR-21 in oral squamous cell carcinoma. Journal of Oral and Maxillofacial Pathology. 2021, 25 (1), 154
- 5) Tejasvi MA, Anulekha CK, Reddy ER, Kulkarni P, Bhayya H, **Kugaji MS**. Individuals Age Determination from Human Dental Pulp Through DNA Analysis by PCR. Global Medical Genetics. 2021 Feb 15.
- 6) Peram MR, Patil SR, Kumbar VM, **Kugaji MS**, Bhat KG, Diwan PV, Jalalpure S. An RP-HPLC Method for Quantitative Analysis of Linagliptin Entrapped in Nanotransfersomes and its Application to Skin Permeation Studies. Current Pharmaceutical Analysis. 2021 Feb 1;17(2):231-40.
- 7) Pattan SS, Bhat KG, Kumbar VM, **Kugaji MS**, Pattar G. Defining the normal range for screening panel of neutrophil function tests in healthy adult Indian participants. Indian Journal of Health Sciences and Biomedical Research (KLEU). 2021 Jan 1;14(1):141.
- 8) Kumbar VM, Peram MR, **Kugaji MS**, Shah T, Patil SP, Muddapur UM, Bhat KG. Effect of curcumin on growth, biofilm formation and virulence factor gene expression of Porphyromonas gingivalis. Odontology. 2021 Jan;109(1):18-28.
- 9) Kumbar VM, Muddapur UM, Bhat KG, Shwetha HR, **Kugaji MS**, Peram MR. Indirect

Immunofluorescence and Tumorspheres Enrichment Technique for Identifying Cancer Stem Cell Markers in Cancer Cell Lines From Primary Oral Cancer Tissues: An In Vitro Study. *Journal of Advanced Oral Research*. 2020 Nov;11(2):224-30.

- 10) Ingalagi P, Kotrashetti V, Bhat K, **Kugaji M**. Comparison of cluster analysis of *Porphyromonas gingivalis* by arbitrarily primed-polymerase chain reaction between healthy and chronic periodontitis subjects. *Journal of Oral and Maxillofacial Pathology: JOMFP*. 2020 May; 24(2):251.
- 11) Idate U, Bhat K, Kotrashetti V, **Kugaji M**, Kumbar V. Molecular identification of Capnocytophaga species from the oral cavity of patients with chronic periodontitis and healthy individuals. *Journal of Oral and Maxillofacial Pathology: JOMFP*. 2020 May;24(2):397.
- 12) **Kugaji M**, Muddapur U, Bhat K, Joshi V, Manubolu M, Pathakoti K, Peram MR, Kumbar V. Variation in the Occurrence of fimA Genotypes of *Porphyromonas gingivalis* in Periodontal Health and Disease. *International journal of environmental research and public health*, Vol 17, Jan 2020, p 1826.
- 13) Matondkar SP, Yavagal C, **Kugaji M**, Bhat KG. Quantitative assessment of *Scardovia wiggsiae* from dental plaque samples of children suffering from severe early childhood caries and caries free children. *Anaerobe*. 2019 Oct 16:102110.
- 14) **Kugaji MS**, Muddapur UM, Bhat KG, Joshi VM, Kumbar VM, Peram MR. Quantitative Evaluation of *Porphyromonas gingivalis* in Indian Subjects With Chronic Periodontitis by Real-Time Polymerase Chain Reaction. *Journal of Advanced Oral Research*. 2019 Sep 13:2320206819863952.
- 15) **Kugaji, Manohar S**; Kumbar, Vijay M; Peram, Malleswara Rao; Patil, Sanjivini; Bhat, Kishore G; Diwan, Prakash V. Effect of Resveratrol on biofilm formation and virulence factor gene expression of *Porphyromonas gingivalis* in periodontal disease.; *Apmis* 127 (4), 187-195.
- 16) Babji, Deepa; Nayak, Ramakant; Bhat, Kishore; Kotrashetti, Vijayalakshmi; Babaji, Harsha; **Kugaji, Manohar S**. Detection and comparison of microsatellite marker D9S1747 with clinical stages and grades of oral squamous cell carcinoma. *Journal of Oral and Maxillofacial Pathology*. 2019, 23; 1, 161.

- 17) Raviraj, GA; Bhat, Kishore G; **Kugaji, Manohar S**; Kumbar, Vijay M; Hooli, Amruta. Study of microbial diversity in saliva and plaque samples from caries-free and caries-affected children using denaturing gradient gel electrophoresis. Journal of Indian Society of Pedodontics and Preventive Dentistry. 2018, 36; 4, 396.
- 18) Vijayalakshmi S Kotrashetti, Kishore Bhat, Smita Pattanshetty, **Manohar Kugaji**, Amruta Hooli. Determination of prevalence of genus Prevotella from the subgingival plaque samples of chronic periodontitis and in healthy individual through polymerase chain reaction.; Journal of Advanced Clinical & Research Insights. 2018, 5, 119-123.
- 19) Pooja Desai, Amruta Hooli, **Manohar Kugaji**, Vijayalakshmi kotrashetti, Kishore Bhat, Vikram Pai. Detection of Aggregatibacter actinomycetemcomitans and red complex bacteria from supragingival and subgingival plaque samples of healthy individuals before orthodontic treatment - A clinical and microbiological correlation. Journal of Advanced Clinical and Research Insights. 2018, 5, 104-110.
- 20) Nayak, Aarati; Bhat, Kishore; Shivanaiakar, Sachin; Pushpa, P; **Kugaji, Manohar**; Kumbar, Vijay. Detection of red complex organisms in chronic periodontitis by multiplex polymerase chain reaction.; Journal of Advanced Clinical & Research Insights. 2018, 5, 139-144.
- 21) Bhat, Kishore G; Chhatre, Aaradhana; Kumbar, Vijay M; **Kugaji, Manohar S**; Patil, Sanjeevani. Application of fluorescent In situ hybridization for rapid detection of Aggregatibacter actinomycetemcomitans in patients with chronic periodontitis.; Journal of the International Clinical Dental Research Organization, 2018, 10; 1, 32.
- 22) Satish S Bhat, Naveen Shivalingegowda, Vidyanand K Revankar, NK Lokanath, **Manohar S Kugaji**, Vijay Kumbar, Kishore Bhat. Synthesis, structural characterization and biological properties of phosphorescent iridium (III) complexes. Journal of inorganic biochemistry. 2017, 177, 127-137.
- 23) Joshi, Vinayak M; Bhat, Kishore G; **Kugaji, Manohar S**; Shirahatti, Ravi. Characterization and serotype distribution of Aggregatibacter actinomycetemcomitans: Relationship of serotypes to herpesvirus and periodontal status in Indian subjects. Microbial pathogenesis. 2017, 110, 189-195.
- 24) **Kugaji, Manohar S**; Bhat, Kishore G; Joshi, Vinayak M; Pujar, Madhu; Mavani, Pratik T. Simplified method of detection of Dialister invisus and Olsenella uli in oral cavity samples by polymerase chain reaction. Journal of advanced oral research. 2017, 8, 47-52.

- 25) Dr. Kishore G. Bhat , Dr Aradhana Chhatre , Mr. Vijay M. Kumbar , **Mr. Manohar S. Kugaji**. Detection and Quantitation of red complex bacteria in subgingival plaque by using Fluorescent In Situ Hybridization (Fish). International Journal of Research - Granthaalayah. 2017, 5; 11, 279-289.
- 26) Joshi, Vinayak M; Bhat, Kishore G; **Kugaji, Manohar S**; Ingalagi, Preeti S. Prevalence of Porphyromonas gingivalis and its relationship with herpesvirus in Indian subjects with chronic periodontitis: A cross-sectional study. Journal of the International Clinical Dental Research Organization. 2016, 8; 2, 106.
- 27) Joshi, Vinayak Mahableshwar; Bhat, Kishore Gajanan; **Kugaji, Manohar Suresh**; Ingalgi, Preeti Shivaji. Occurrence of Aggregatibacter actinomycetemcomitans in Indian chronic periodontitis patients and periodontally healthy adults. Journal of Indian Society of Periodontology. 2016, 20; 2, 141.
- 28) Joshi, VM; Bhat, KG; Katti, SS; **Kugaji, MS**; Ingalgi, PS. Prevalence of Herpesvirus and Correlation with Clinical Parameters in Indian Subjects with Chronic Periodontitis. The journal of contemporary dental practice. 2015, 16;11, 915-920.
- 29) Varsha Chaudhary, Bhat Kishore, Sunil Rao, Preeti Ingalagi & **Manohar Kugaji**. Comparison of Culture and PCR for Detection of Porphyromonas gingivalis in patients with Chronic Periodontitis and Healthy Subjects. Journal of pharmaceutical and biomedical sciences. 2013, 34; 34, 1670-1675.
- 30) Varsha Chaudhary, Bhat Kishore, Sunil Rao, **Manohar Kugaji** and Preeti Ingalagi. Detection of Treponema denticola by PCR in Patients with different periodontal status. International journal of current Microbiology and Applied Sciences. 2013, 2; 10, 172-178
- 31) Nagesh C, Attimarad SL, **Kugaji MS**, Shreenal Patel, Venkatesh JS. Design and In-Vitro Evaluation of Gastroretentive drug delivery system of Carvedilol. Universal Journal of Pharmacy. 2013, 2; 2, 118-124.
- 32) Attimarad, SL; Gaviraj, EN; Nagesh, C; **Kugaji, MS**; Sutar, RS. Screening, isolation and purification of antibiotic (s) from marine actinomycetes. International Journal of Research in Ayurveda and Pharmacy. 2012
- 33) Venkatakrishna, R; Kishore, B; **Manohar, K**; Shantaram, PVM. Detection of Methicillin Resistance in Staphylococcus aureus: Comparison of Disc diffusion and MIC with mecA gene detection by PCR. IJPBS, 2011, 1, 518-21.

Awards

1. **Best Poster Award** for “Quantitative evaluation of *Porphyromonas gingivalis* by Real time PCR and prevalence of fimbriae genotypes in patients with Chronic periodontitis- A clinic-microbiological study” at National conference on ‘Recent Trends in Biochemical Engineering and Biotechnology (RTBEB-2019)’ on 19th September 2019 held at Department of Biotechnology, BVBCET, Hubballi.
2. **Best Poster Award** for “Curcumin Nanomicelles: A Novel Therapeutic Approach for Drug-Resistant Oral Cancer Cell Lines” at National Conference on “Recent Trend in Biotechnology-2018” (RTBT-2018) organized by Dept. Of Chemistry And Biotechnology, KCD College, Dharwad, Karnataka

Oral or Poster Presentations/ Resource person

1. Oral Presentation “Resveratrol inhibits biofilm formation and virulence factor gene expression of *Porphyromonas gingivalis* in patients with chronic periodontitis” at National conference on 'Recent trend in Biotechnology-2018' on 23rd and 24th Feb 2018 at Karnatak Science College, Dharwad.
2. Paper presentation titled “Curcumin promotes mitochondrial-mediated apoptosis in human Larygeal cancer cell line (HEP-2) by miRNA-203 mediated down regulation of surviving” in International conference on “Global Convergence in technology, Enterpreneurship, computing and value engineering: Principles and Practices” organized by Sapthagiri College of Engineering held on 16th and 17th July 2021.

Workshops/Conferences

1. Attended webinar on “Sequence submission-GenBank” conducted by Biosrishti, Online Life Science solutions on 9th April 2021.
2. Attended webinar on “Multiplex detection of oncogenic mutations using LNA-based assays on the QIAcuity digital PCR system” conducted by Qiagen on 28th Aug 2020.
3. Participated in BIRAC Sensitization Workshop on "Grant Writing, Intellectual Property and Technology Management in Life Sciences", 14th & 15th Feb, 2020 at BITS, Pilani -K K Birla Goa Campus, Goa.
4. **Organizing secretary** for one day seminar titled “Empowering the Hard and Soft skills: A key to Success” on Saturday, 8th February 2020 at Maratha Mandal’s NGH Institute of Dental Sciences & Research Centre, Belgaum
5. Participated in the pre-conference workshop on ‘Scientific Writing’ organized by Department of Biotechnology BVBCET, Hubballi on 19th September 2019.

6. Participated at one day seminar cum workshop "Missing Links in Scientific Writing" on Saturday, 3rd August 2019 at Maratha Mandal's NGH Institute of Dental Sciences & Research Centre, Belgaum.
7. Participated in National conference on 'Recent trend in Biotechnology-2018' on 23rd and 24th Feb 2018 at Karnatak Science College, Dharwad.
8. Participated in the 'Hands-on Workshop on Basic Technique of Cell Culture' from 21st to 23rd September 2017 held at Maratha Mandal's NGH Institute of Dental Sciences & Research Centre, Belgaum
9. Participated as a **Resource person** in the 'Hands-on Workshop on Cultivation and Identification of Oral Anaerobes' on 21st April 2017 and 22nd April 2017 held at Maratha Mandal's NGH Institute of Dental Sciences & Research Centre, Belgaum.
10. Participated in the Faculty Development Program on "Design & Analysis of Experiments" from 5th to 7th January 2017 held at Department of Biotechnology BVBCET, Hubballi.
11. Participated in the hands in workshop on 'Workshop on Research Methodology' on 29th to 31st of August 2016 at Maratha Mandal's NGH Institute of Dental Sciences & Research Centre, Belgaum.
12. Participated as a **Resource person** in the hands-on workshop on 'ELISA' on 20th May 2016 at Maratha Mandal's NGH Institute of Dental Sciences & Research Centre, Belgaum.
13. Attended the workshop titled 'Infection Control' organized by Maratha Mandal's NGH Institute of Dental Sciences & Research Centre, Belgaum on 23rd Sept 2015.
14. Attended 'One day faculty Development program' conducted by RGUHS, Karnataka held at Maratha Mandal's NGH Institute of Dental Sciences & Research Centre, Belgaum on 22nd Sept 2015.
15. Participated in the hands on workshop on 'PCR and Sequence data Analysis' held at RMRC, Belgaum from 31st July to 1 August 2014.
16. Participated as a **Resource person** at 13th ISP National Pre-Convention Programme for the live demonstration (hands on) "Basic and Recent Advances in Diagnostic Technology in Oral Microbiology" held at A.J. Institute of Dental Sciences, Mangalore on 7th of March 2014.
17. Participated in the 5th International Nanotechnology Conference held at Bangalore from 5th to 7th Dec 2012.
18. Participated as a **Resource person** for the 'Workshop on PCR techniques' held in Maratha Mandal's NGH Institute of Dental Sciences & Research Centre, Belgaum on 21-24th Sept 2011.