

AJEESHKUMAR KIZHAKKEPPURATH KUMARAN, PhD

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CURRENT POSITION

19.06.2024 to present

Working as Assistant Professor (Contract) in Biochemistry, Processing and Food Engineering Division at Kelappaji College of Agricultural Engineering and Food Technology, Tavanur, Kerala

EDUCATION

University	Degree	Year and month of award	Mark (% or GPA, CGPA)
Cochin University of Science and Technology, Cochin, India	Doctor of Philosophy (PhD) in Biochemistry under Faculty of Marine Sciences	2018, November	8.50 GPA
Bharathiar University, Coimbatore, India	Msc. Biochemistry	2012, June	8.25 CGPA
Mahatma Gandhi University, Kerala, India	Bsc. Biotechnology	2010, April	70.50 %

EXPERIENCE

- **Working as Assistant Professor (Contract) in Biochemistry, Processing and Food Engineering Division at Kelappaji College of Agricultural Engineering and Food Technology, Tavanur, Kerala (Pursuing)**
Course & Subjects handling: B. Tech, Food Technology: Food Biochemistry and Nutrition (2+1); Food Chemistry of Macronutrients (2+1)
- **Working as ICMR Centenary Post-Doctoral Fellow at ICMR-National Institute of Pathology, Delhi form October, 2021 to October 2023**
 - Topic: Temporal variation of proteoglycans expression in experimentally induced breast cancer model using proteomics approach: A possible therapeutic target for breast cancer Treatment
 - Characterization of Proteoglycans molecules in breast cancer by LC-MS/MS based proteomics, lipidomics and metabolomics approach
- **National Ayurveda Research Institute for Panchakarma (NARIP), Thrissur, Kerala, India**

**Working as Senior Research Fellow
2021**

December 2020 to October

Toxicity and efficacy study of Ayurveda drugs on Animal model (Rodent)

- Toxicity evaluation of Ayurveda drugs in rodent model
- Efficacy study of Ayurveda drugs in rodent model

➤ **ICAR-Central Institute of Fisheries Technology (CIFT), Cochin, Kerala, India**

Worked as Senior Research Fellow and Research Associate

**April 2013 to
2020**

- Proteomics, lipidomics and metabolomics study in osteoarthritis, cancer biology etc.
- Performed purification of proteoglycans and glycosaminoglycans from shark cartilage and evaluated their anti-cancer and anti-osteoarthritic effects in rat model.
- Conducted proteomics study of rat serum and knee joint proteins by using 2-D electrophoresis and LC-MS/MS.
- Oil stability study and bioactivity evaluation on *in-vitro* and *in-vivo* models.
- Performed nutrient profiling namely, protein, fat, amino acids, fatty acids and minerals by AOAC method.
- Handled extraction, purification and characterization of bioactive compounds from marine sources.
- Involved in development of nutraceutical products from marine sources.
- Performed western blotting, gel electrophoresis, UV spectrophotometer.
- Performed gas chromatography (GC-ECD) for the analysis of pesticide residues in fish and fishery products and water.
- Handled analysis of fatty acids by gas chromatography (GC-FID) and GC-MS/MS.
- Performed HPLC-analytical and preparative for the estimation of carotenoids, peptides, glycosaminoglycans etc.
- Assisted super critical fluid extraction (SFE) of oils and bioactive compounds from sea weeds.
- Experience in basic toxicological study of ayurvedic drugs in rat model

PEER-REVIEWED PUBLICATIONS

- **Kizhakkeppurath Kumaran Ajeeshkumar**, Parvathy R Chandran, Kalladath Venugopal Vishnu, Kuttipurath Raghavan Remyakumari, Peruvazhipurath Appu Aneesh, Chandran Mahesh, Abdul Jaleel, Mathew Suseela, Kurukkan Kunnath Asha and Gopinathan Pillai Sreekanth, Treatment with proteoglycans improves the proteome variations to exert its anti-osteoarthritic potential, *Calcified Tissue International*, 2023 (Under Review)
- **Ajeeshkumar**, K. K., Sahu, A., Singh, A., Nisha, A. R., Sekhar Chatterjee, N., Mathew, S., & Verma, S. (2023). Proteoglycans in breast cancer, identification and characterization by LC-MS/MS assisted proteomics approach: A review. *PROTEOMICS–Clinical Applications*, 2200046.
- Aneesh, P. A., **Ajeeshkumar, K. K.**, Lekshmi, R. K., Anandan, R., Ravishankar, C. N., & Mathew, S. (2022). Bioactivities of astaxanthin from natural sources, augmenting its

biomedical potential: A review. *Trends in Food Science & Technology*.
<https://doi.org/10.1016/j.tifs.2022.05.004>

- **Ajeeshkumar, K. K.**, Aneesh, P. A., Raju, N., Suseela, M., Ravishankar, C. N., & Benjakul, S. (2021). Advancements in liposome technology: Preparation techniques and applications in food, functional foods, and bioactive delivery: A review. *Comprehensive Reviews in Food Science and Food Safety*, 20(2), 1280-1306. <https://doi.org/10.1111/1541-4337.12725>
- Vishnu, K.V., Chatterjee, N.S., **Ajeeshkumar, K.K.**, Lekshmi, R.G.K., Tejpal, C.S., Mathew, S. and Ravishankar, C.N., 2017. Microencapsulation of sardine oil: Application of vanillic acid grafted chitosan as a bio-functional wall material. *Carbohydrate Polymers*, 174, pp.540-548. <https://doi.org/10.1016/j.carbpol.2017.06.076>
- **Ajeeshkumar, K.K.**, Vishnu, K.V., Navaneethan, R., Raj, K., Remyakumari, K.R., Swaminathan, T.R., Suseela, M., Asha, K.K. and Sreekanth, G.P., 2019. Proteoglycans isolated from the bramble shark cartilage show potential anti-osteoarthritic properties. *Inflammopharmacology*, 27(1), pp.175-187. <https://doi.org/10.1007/s10787-018-00554-5>
- **Ajeeshkumar, K. K.**, Vishnu, K. V., Bineesh, K. K., Mathew, S., Sankar, T. V., & Asha, K. K. (2021). Macromineral and heavy metal profiles of selected deep-sea fish from the Kochi coast of the Arabian Sea, India. *Marine Pollution Bulletin*, 167, 112275. <https://doi.org/10.1016/j.marpolbul.2021.112275>
- Vishnu K.V., Lekshmi R. Gopakumar, **Ajeeshkumar K.K.**, Niladri S. Chatterjee, Vishnuja Soman, Shaheer Peeralil, Suseela Mathew, Ravishankar C.N., David Julian McClements, Strategies for Prevention of Oxidative Deterioration of Omega-3 rich Fish Oils, *Foods*, June, 2020. <https://doi.org/10.3390/foods10071566>
- Aneesh, P. A., Anandan, R., Kumar, L. R., **Ajeeshkumar, K. K.**, Kumar, K. A., & Mathew, S. (2020). A step to shell biorefinery—Extraction of astaxanthin-rich oil, protein, chitin, and chitosan from shrimp processing waste. *Biomass Conversion and Biorefinery*, 1-10. <https://doi.org/10.1007/s13399-020-01074-5>
- Vishnu, K.V., **Kumar, K.A.**, Chatterjee, N.S., Lekshmi, R.G.K., Sreerexha, P.R., Mathew, S. and Ravishankar, C.N., 2018. Sardine oil loaded vanillic acid grafted chitosan microparticles, a new functional food ingredient: attenuates myocardial oxidative stress and apoptosis in cardiomyoblast cell lines (H9c2). *Cell Stress and Chaperones*, 23(2), pp.213-222. 213–222 (2018). <https://doi.org/10.1007/s12192-017-0834-5>
- Vishnu, K. V., **Ajeeshkumar, K. K.**, Lekshmi, R. G., Chatterjee, N. S., Ganesan, B., Anandan, R., ... & Ravishankar, C. N. (2022). Sardine oil loaded vanillic acid grafted chitosan microparticles improves the in vivo antioxidant, haematological and lipid profile. *Journal of Food Science and Technology*, 1-7. <https://doi.org/10.1007/s13197-021-05329-5>
- Chatterjee, N.S., **Kumar, K.A.**, Ajeeshkumar, K.K., Kumari, K.R., Vishnu, K.V., Anandan, R., Mathew, S. and Ravishankar, C.N., 2017. Screening natural content of water-soluble B vitamins in fish: enzymatic extraction, HILIC separation, and tandem mass

spectrometric determination. Journal of AOAC International, 100(3), pp.579-585.
<https://doi.org/10.5740/jaoacint.17-0056>

- Chatterjee, N.S., Singh, A., Vishnu, K.V., **Ajeeshkumar, K.K.**, Anandan, R., Kumar, K.A. and Mathew, S., 2019. Authentication of two bio-active fish oils by qualitative lipid profiling using semi-targeted approach: An exploratory study. Journal of AOAC International. doi: 10.5740/jaoacint.19-0208.

TECHNICAL SKILLS AND RESEARCH EXPERTISE

- Proteomics and lipidomics study
- Sample preparation for LC-MS/MS, GC-MS, ICP-OES and handling of HPLC, GC
- Animal handling (Rat and mice), feeding, blood collection and organ separation
- Gel electrophoresis and western blotting
- Efficacy and toxicological study in rat models
- Bioactive compounds extraction and isolation using column chromatography, precipitation etc

ACHIEVEMENTS AND AWARDS

- Best paper award in the International symposium on “Biodiversity, Agriculture, Environment and Forestry,” held at Ooty, Tamilnadu, India December 11- 12 (2015) by AABS (Association of Advancement of Biodiversity Science).
- Best paper award in the National seminar in the National seminar on “Advances in Marine natural products and nutraceutical research” conducted on 26th February, 2016 at CIFT, Cochin.
- Best poster award in Seminar on “New frontiers in molecular biology” at Mar Athanasius college, Ernakulam, India, 2013

REFERENCES

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