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Dr. Veda Krishnan is an accomplished professional with an academic journey marked by excellence including distinctions in M.Sc. and B.Sc. degrees in Biotechnology and Botany, respectively, a Ph. D in Biotechnology, and an Agricultural Research Scientist (Senior scientist) at the division of biochemistry, ICAR-Indian Agricultural Research Institute. Over the past twelve years, Dr. Krishnan has been instrumental in advancing food and nutritional research, focusing on enhancing global human health through innovative scientific endeavors. At the forefront of her career, she is a project leader of the Food Matrix Lab, and has led numerous research initiatives ranging from deciphering the role of nutritional matrix components, such as anthocyanins, α -tocopherol, and resistant starch. Dr. Krishnan has conducted groundbreaking work in characterizing phytate biosynthetic enzymes and metabolic pathway engineering for developing low-phytate soybean varieties. Her global research footprint includes stints as an International Research Exchange Fellow at Nanyang Technological University, Singapore, and a Fulbright-Nehru Postdoctoral Research Fellow at the Whistler Center for Carbohydrate Research, Purdue University, USA. Dr. Krishnan's leadership extends to securing substantial grants and fellowships from esteemed organizations like DBT, ICAR, NASF, DST-SHRI Projects and the Fulbright-Nehru program, supporting groundbreaking initiatives from exploring nutraceutical potential in mushrooms to enhancing micronutrient bioavailability in rice varieties. Her work has brought international collaborations and grants such as IBERS BBSRC international institutional partnership, JoyWelch grant funding etc. Recently (2024-2025) an industrial sponsored project aiming mycoceuticals were also initiated with FunGuY Ltd. With a strong focus on innovation, she holds more than 75 publications in renowned journals and contributions to esteemed books, obtained a granted patent, and copyright, along with successful translation her research into four commercialized products demonstrating her commitment to practical solutions for nutritional challenges. Dr. Krishnan's contributions extend beyond the laboratory, as evidenced by her active involvement in global and Indian scientific societies. She has received numerous honors and awards, including being selected as a member of the Global Young Academy (GYA) becoming the first scientist from Agriculture, served as the National Coordinator for the Young Scientist Conclave DST-India International Science Festival (IISF2023), secretary of INSA-Indian National Young Academy of Science (2022-2024), selected as Fulbright Ambassador for change, Fulbright fellow (2021-2022), Plantae fellow, NASI member and many more. Her dedication to science communication is highlighted by her participation as a resource person and speaker at international events, and has received several awards for her research presentation in different conferences. Dr. Krishnan is a dedicated educator with a passion for mentoring students at both undergraduate and graduate levels and has also contributed to

online educational platforms. Her work, outreach and research accomplishments exemplifies a steadfast dedication towards agricultural science and addressing global nutritional related challenges.

PROFESSIONAL PREPARATION

- o Fulbright-Nehru Postdoctoral Research Fellow (Agriculture), 2021-2022: Whistler Center for carbohydrate Research, Purdue University, IN, USA
- o Ph.D. (Biotechnology), 2014-2019: Bharathidasan University Trichy & ICAR-Indian Agricultural Research Institute (IARI), ND, India
- o Project research associate, 2009-2011: CSIR-Institute of Genomics and Integrative Biology (IGIB) ND, India
- o Research Fellow, 2008-2009: Department of Science and Technology (DST)- Sree Chitra Tirunal Institute of Medical Sciences and Technology (SCTIMST), Kerala, India
- o International Research Exchange Fellow, 2008: School of Biosciences (SBS), Nanyang Technological University (NTU), Singapore
- o M.Sc. (Biotechnology, with First position & Gold Medal), 2006-2008: Cochin University of Science and Technology (CUSAT), Kerala, India
- o B.Sc. (Botany & Biotechnology, with Second position & Silver Medal), 2003-2006: Kerala University, Kerala, India

APPOINTMENTS

- o ARS Scientist (Plant Biochemistry) 2012-till date: ICAR-Indian Agricultural Research Institute (IARI), Ministry of Agriculture and Farmer's welfare, ND, India
- o ARS Scientist (Plant Biochemistry) 2011-2012: ICAR- Central Institute of Research on Cotton Technology (CIRCOT), Mumbai, India

GRANTS & FELLOWSHIPS

- o ***Contract Research Project - Mycoceutical-based product development and their therapeutic validation using in vitro assays (2024-2025)*** [9.85Lakhs INR, 1 year project funded by FunGuy PvtLtd]
- o ***Developing Nutrient-Rich, Sustainable and Resilient Food Systems using minor cereals (2024-2025)***, with University of Aberystwyth, Max Planck Germany and ICAR-IARI under Joy Welch Grant (4800 GBP)
- o ***IBERS BBSRC international institutional partnership funding (2024)***, with University of Aberystwyth and ICAR-IARI March 2024 (5000 GBP) BBSRC (BB/Y514287/1: International Institutional Awards Tranche 1/ IBERS and BBS/E/IB/230001B: Resilient Crops: Grains for Health (Oats)
- o ***"Innovative technologies for convenient food products from arable crops"*** ***(CRSCLARISIL20210023308)*** (Co-PI)
- o ***"Global CoE on Millets" of ICAR-IIMR under EFC (2023-26)*** : Generation of mapping population identification of genomic regions associated with grain proteins in pearl millet (Co-PI; 50 Lakhs)

- o **“Global CoE on Millets” of ICAR-IIMR under EFC (2023-26)** : Omics-based Interventions for Characterizing the Pearl Millet Genotypes for Rancidity and Development of Nutri-Rich Processed Products with Improved Bioavailability, and Shelf-Life (Co-PI; 50 Lakhs)
- o **DST-Karyashala (2023-2024)** - Food Matrix Characterization Techniques: Nutrients to Nutrient Bioavailability (PI, Rs.5 lakhs)
- o **Outreach grant** from Society for Plant Biochemistry & Biotechnology: Platform for Agriculture students to showcase their research on Agri-Innovations in the pursuit of food and nutritional security.
- o **Outreach funding** support from HRD-ICAR for the Center for Advanced Faculty Training 2023 on “Agri-derived nutrients and nutraceuticals for innovative health foods: Tools and Strategies during 15th Dec, 2023 - Jan 4th, 2024 (Rs. 9.5 lakhs)
- o **DST-SHRI Project (2024-2027)** - Heritage millet recipes of Southern India and their scientific validation for low glycemic and satiety inducing effects (Principal Investigator, 58,920.59\$)
- o **ICAR-National Agricultural Science Fund (NASF) (2022-2025)** - *Identification and characterization of specific genes/ metabolites linked with rancidity and their bioavailability patterns in landraces and elite cultivars of pearl millet for the development of nutri-rich products* (Co-Principal Investigator, 97.49 lakhs) F. No. NASF/MA-9014/2022; IARI code – 20-68, TG2865) 01st Aug. 2022 – 31st July, 2025
- o **Department of Biotechnology, India – North East India grant (2021-2024)**– Exploring Nutraceutical Potential of shiitake (*Lentinula edodes*) and maitake (*Grifola frondosa*) Mushrooms and Promotion of its Production for Entrepreneurial and Socioeconomic Livelihood in North East India (Principal Investigator – 57000\$) 31.03-2021 - 29.09.2025
- o **USIEF-Fulbright-Nehru Post-Doctoral Fellowship (2021-2022)** - Twelve-month post-doc grant to pursue research on ‘Starch modifications using bio-actives for inducing satiety’ at Whistler Centre for Carbohydrate Research, Purdue University, Indian (36,000\$)
- o **World Bank sponsored, National Agricultural Higher Education Project Centre for Advanced Agricultural Science and Technology (CAAST) student grant (2019-2020)** - on ‘Developing starch quality matrix to identify soluble fibre rich Indian rice varieties with low glycemic potential’ (Principal Investigator - 2600\$)
- o **Department of science and technology (DST-SERB), India grant (2019-2021)** - on ‘Pullulanase based identification of high resistant starch rice (*Oryza sativa* L.)’ - EMR/2016/005722 (Co-Principal Investigator - 60,000\$)
- o **ICAR-Niche Area of Excellence (NAE) project (2019-2022)** - on ‘Development of Biochemical and Physical Processing Technology to Arrest Oxidation of Lipids/Flavones to Enhance the Shelf-Life of Pearl Millet Flour-Edn.5(22)2017-EP&HS,2019 (Co - Principal Investigator - 194464.41\$]
- o **Department of science and technology -International travel grant (2018)** - To attend and present at 5th International Rice Congress, Singapore on ‘Healthier attributes of pigmented rice’ -; ITS/2018/004409 (Co - Principal Investigator; 1205\$)
- o **Department of science and technology (DST-SERB), India grant (2020-2023)** - Improvement of micronutrient bioavailability and storability of mega basmati rice variety, Pusa Basmati 1121 - CRG/2020/003385 (Co - Principal Investigator; 6000\$)
- o **ICAR - National Agricultural Science Fund (NASF), grant (2012-13)** - *Development of gossypol-free lysine-rich cottonseed cake by solid state fermentation* (Co - Principal Investigator; 97,000\$)

PUBLICATIONS**a) Research Articles**

Google Scholar total citations: **2060 h-index: 28; i10-index: 58**

(<https://scholar.google.com/citations?user=M5udW3UAAAAJ>)

**S. Title, author and journal information (Last five years (2018-2025; chronologically)
No.**

- [60]** Samota, M.K., Awana, M., Pandey, R., Mithra, S.V., **Krishnan, V.**, Kumar, S., Tyagi, A. and Singh, A., 2025. Empowering rice resilience: elevating starch quality via seed priming amidst bio-molecular challenges during reproductive and maturation phases under drought stress. *Physiology and Molecular Biology of Plants*, pp.1-15.
- [59]** Tomar, M., Bhardwaj, R., Singh, P., Kaur, S., Singh, S.P., Dahuja, A., **Krishnan, V.**, Kansal, R., Yadav, V.K., John, R. and Singh, A.K., 2025. From Grain to Gain: Bridging Conventional Methods with Chemometric Innovations in Cereal Quality Analysis through Near-Infrared Spectroscopy (NIRS). *Food Control*, p.111482.
- [58]** Devi, K., Babu, S., Rathore, S.S., Raj, R., Yeasin, M., Yadav, D., Pandey, A., Gairola, A., Kumar, V., **Krishnan, V.** and Singh, R., 2025. Optimizing growth, productivity and nutrient acquisition of maize under semi-arid region: impact of legume integration and nitrogen levels. *Proceedings of the Indian National Science Academy*, pp.1-13.
- [57]** Keerthana CS, Beura M, Rozi, Susheel Sharma, Saran S, Dahuja A, Ganjoo A, **Krishnan V*** (2025) Unveiling the Glucan Profile: A Comparative Study of Lion's Mane and Shiitake Mushrooms. *Natural Product Research* (Accepted on 1st May, 2025)
- [56]** Rahaman S, Awana M, Goswami D, Kumari S, Bollinedi H, Anand A, Dash S, Rao M, Singh A, Singh AK, **Krishnan V*** (2025) Predictive model for resistant starch (RS) in rice (*Oryza sativa* L.) based on digestibility factors. *Journal of Plant Biochemistry and Biotechnology* <https://link.springer.com/article/10.1007/s13562-025-00973-w>
- [55]** Mondal D, Thakare SS, Bollinedi H, Aggarwal S, Das D, Thomas B, Singh SP, Sathyavathi T, Sundaram RM, Anand A, Girija A, Singh A, Sachdev A, Praveen S, Singh AK, **Krishnan V*** (2025) Chain length and degree of saturation of cooking fats influence the inherent glycemic potential of dietary starches. *Starch* (Accepted on 11th March, 2025)
- [54]** C. K. Mohammed Salman, Dahuja A, Singh A, **Krishnan V*** (2025) A Decision Tree Approach to Glycemic Index Estimation in Rice Based on Hydrolysis Profiles. *Plant Archives* (Accepted Feb, 2025)
- [53]** Hasan M, Ahmad D, **Krishnan V**, sachdev A, Dahuja A (2025) Changes in nutritional, functional, technological, and sensory characteristics of differently pigmented soybean varieties during the *Lactobacillus acidophilus* L. fermentation. *JFCA* (accepted)

- [52] Minnu Sasi *, Sandeep Kumar, Om Prakash, **Krishnan V**, Vinayaka., Govind Singh Tomar, Jigni Mishra, Arpitha S.R., Parshant Kaushik, Virendra Singh Rana, Anil Dahuja (2025) Evaluation of Sensory Properties and Short Chain Fatty Acid Postbiotics Production in Fermented Soymilk on Addition of Fructose and Raffinose Family of Oligosaccharides. *Fermentation* (Accepted on 27th Feb, 2025)
- [51] Muskan Beura, C. K. Mohammed Salman, Sohail Rahaman, Haritha Bollinedi, Archana Singh, Sonalika Ray, Md. Yeasin, Rishemjit Kaur & **Krishnan V*** (2025) From Data to Digestibility: Prediction of Resistant starch using machine learning for functional food development. *International Journal of Advances Int J Adv Eng Sci Appl Math*; <https://doi.org/10.1007/s12572-025-00386-x>
- [50] CK, Mohammed Salman, Muskan Beura, Archana Singh, Anil Dahuja, Vinayak B. Kamble, Rajendra P. Shukla, Sijo Joseph Thandapilly, and **Krishnan V*** (2025) Biomimic models for in vitro glycemic index: Scope of sensor integration and artificial intelligence. *Food Chemistry: X* 25 (2025): 102132.
- [49] Salman, CK Mohammed, Haritha Bollinedi, Anjali Anand, Archana Singh, Raman M. Sundaram, K. Prathibha, and **Krishnan V*** (2025) In vitro Glycemic Profiling of Rice: A Dual-Index Approach Using Predictive Glycemic Index and Inherent Glycemic Potential. *Journal of Food Composition and Analysis*, 107229.
- [48] **Policy Paper** - Sharma A, Gupta A, Maurya J ,Khan F, **Krishnan V** (2025) Building a Bio-economy through Non-Timber Forest Produce in Jammu and Kashmir. *PINSA*; <https://link.springer.com/article/10.1007/s43538-025-00450-x>
- [47] Warwate, S.I., Awana, M., Thakare, S.S., **Krishnan, V.**, Kumar, S., Bollinedi, H., Arora, A., Sevanthi, A.M.V., Ray, M., Praveen, S. and Singh, A., Exploring the Synergy of Enzymes, Nutrients, and Gene Networks in Rice Starch Granule Biogenesis. *Frontiers in Nutrition*, 11, p.1448450.
- [46] **Krishnan V*** (2024) Editorial: Millets: superfood of the century – challenges and opportunities. *Front. Nutr.* 11:1462567. doi: 10.3389/fnut.2024.1462567
- [45] **Policy paper** - Sharma A, Sharma P, Khan F, **Krishnan V**, Sarma A, Mishra SP (2024) INSA-Nectar white paper on Strategic innovation for North Eastern India. *PINSA*.
- [44] Hasan M, Tripathi K, Harun M, **Krishnan V**, Kaushik R, Chawla G, Shakil NA, Verma MK., Dahuja A, Sachdev A and Lorezo JM (2024). Unravelling the effect of extraction on anthocyanin functionality and prebiotic potential. *Heliyon*. 10(11)e31780
- [43] Verma, P., Sen, R., Bamanna, A., Elhindawy, M., Nagpal, K., & **Krishnan, V*** (2024). Structural chemistry to therapeutic functionality: A comprehensive review on proanthocyanidins. *Biocatalysis and Agricultural Biotechnology*, 55, 102963.
- [42] Jacob J, **Krishnan V**, Antony C, Bhavyasri M, Aruna C, Mishra K, Nepolean T, Satyavathi CT and Visarada KBRS (2024) The nutrition and therapeutic potential of millets: an updated narrative review. *Front. Nutr.* 11:1346869. doi: 10.3389/fnut.2024.1346869

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- [40] Mondal, D., Awana, M., Mandal, S., Pandit, K., Singh, A., Syeunda, C.O., Thandapilly, S.J. and **Krishnan, V*** (2024) Functional foods with a tailored glycemic response based on food matrix and its interactions: Can it be a reality?. *Food Chemistry: X*, p.101358.
- [39] Pande, H., Kapse, S., **Krishnan, V.**, Kausley, S., Satyavathi, C. T., & Rai, B. (2024). Prediction of Shelf Life of Pearl Millet Flour Based on Rancidity and Nutritional Indicators Using a Long Short-Term Memory Network Model. *ACS Food Science & Technology*, 4(3), 786-795.
- [38] Chakraborty S, Beura M, Devi KS, Singh AR, Keerthana CS, Sharma SK, Singh A, Dahuja A, **Krishnan V** (2024) A novel method for detecting conformation-dependent β glucans-single, double, and triple-helical from Shiitake mushroom. *Natural Product Research*, 1-4. DOI: 10.1080/14786419.2024.230660
- [37] Samota, M. K., Awana, M., **Krishnan, V.**, Kumar, S., Tyagi, A., Pandey, R., Mithra SA., & Singh, A. (2024). A novel micronutrients and methyl jasmonate cocktail of elicitors via seed priming improves drought tolerance by mitigating oxidative stress in rice (*Oryza sativa* L.). *Protoplasma*, 261(3), 553-570.
- [36] Geethanjali S, **Krishnan V**, T Uma, Maheshwari and Aravind Rajan (2024). Phytochemical profile of onion (*Allium cepa*) var. aggregatum: Comparative study of TNAU varieties with a local indigenous. *The Indian Journal of Agricultural Sciences*, 94(3), pp.263-269.
- [35] Chakraborty, S., Beura, M., Sharma SK., Singh, A., Dahuja, A and **Krishnan, V*** (2023) Lentinan, β -glucan from Shiitake (*Lentinula edodes*): A review on structure, conformational transition, and gastro-intestinal interaction contributing towards its anti-diabetic potential. Trends in Food Science and Technology <https://doi.org/10.1016/j.tifs.2023.104224>
- [34] Hasan, M., Arpitha, S.R., Das, C., Laishram, R., Sasi, M., Kumar, S., Maheshwari, C., **Krishnan, V.**, Kumari, S., Lorenzo, J.M. and Kumar, M (2023) Research trends and approaches for the nutritional and bio-functionality enhancement of fermented soymilk. *Journal of Functional Foods*, 107, p.105698.
- [33] Thakare, S.S., Awana, M., Warwate, S.I., Mandal, S., Rudra, S.G., Bollinedi, H., Ray, M., Solanke, A.U., Nair, L.S., Kumar, S. and **Krishnan, V.** (2023) Dynamics of physico-chemical properties towards understanding the optimum ageing of basmati and non-basmati rice (*Oryza sativa* L.) for consumer preferences. *Journal of Cereal Science*, p.103714.
- [32] Hasan, M., Meena, N. L., Krishnan, V., Rudra, S. G., & Dahuja, A (2023) Impact of storage on probiotic viability, nutritional and sensory quality of fermented soymilk produced from different soybean varieties. *Legume Research-An International Journal*, 46(6), 721-727.
- [31] Samota MK, Kaur M, Sharma M, **Krishnan V**, Thakur J, Rawat M, Phogat B and Guru PN (2023) Hesperidin from citrus peel waste: extraction and its health implications. *Quality Assurance and Safety of Crops & Foods*, 15(2), pp.71-99.

- [30] Mukherjee P, Suriyakumar P, Vanchinathan S, **Krishnan V**, Lal MK, Jha PK, Chinnusamy V, Anand A and Prasad PV (2023) Hydrogen Peroxide and GA3 Levels Regulate the High Night Temperature Response in Pistils of Wheat (*Triticum aestivum* L.). *Antioxidants*, 12:342
- [29] **Krishnan, V.**, Verma, P., Saha, S., Singh, B., Vinutha, T., Kumar, R.R., Kulshreshta, A., Singh, S.P., Sathyavathi, T., Sachdev, A. and Praveen, S (2022) Polyphenol-enriched extract from pearl millet (*Pennisetum glaucum*) inhibits key enzymes involved in post prandial hyper glycemia (α -amylase, α -glucosidase) and regulates hepatic glucose uptake. *Biocatalysis and Agricultural Biotechnology*, 43, p.102411.
- [28] San SH, Sagar D*, **Krishnan V**, Awana M, Singh A, Bhowmik A, Singh R and Chander S (2022) Effects of *Helicoverpa armigera* (Hubner) infestation on metabolic sensors dynamics in chickpea. *Allelopathy Journal*, 57: 83-108
- [27] San SH, Sagar D*, Kalia VK, **Krishnan V** (2022) Effect of different chickpea genotypes and its biochemical constituents on biological attributes of *Helicoverpa armigera* (hubner). *Legume Research-An International Journal*, 1: 7.
- [26] **Krishnan V**, Awana M, Kulshreshta A, Praveen S and Singh A* (2023) A quick and simple gel diffusion assay to visualize and quantify pullulanase activity for resistant starch content in food crops. *Journal of Plant Biochemistry and Biotechnology*, 32:89-195.
- [25] Falsafi, S.R., Bangar, S.P., Chaudhary, V., Hosseini, E., Mokhtari, Z., Karaca, A.C., Samota, M.K., Goswami, D., **Krishnan, V.**, Askari, G. and Rostamabadi, H (2022) Recent advances in oral delivery of bioactive molecules: Focus on prebiotic carbohydrates as vehicle matrices. *Carbohydrate Polymers*, p.120074
- [24] Mondal, D., Awana, M., Aggarwal, S., Das, D., Thomas, B., Singh, S.P., Satyavathi, T., Sundaram, R.M., Anand, A., Singh, A, Sachdev, A., Shelly Praveen and **Krishnan, V*** (2022) Microstructure, matrix interactions, and molecular structure are the key determinants of inherent glycemic potential in pearl millet (*Pennisetum glaucum*). *Food Hydrocolloids*, 127, p.107481.
- [23] Kumari, S., Gupta, O.P., Kumar, S., Sasi, M., Arpitha, S.R., Amirtham, D., Mishra, C.B., Thimmegowda, V., **Krishnan, V.**, Sachdev, A. and Kumar, R.R (2022) A Novel Continuous Enzyme Coupled Colorimetric Assay for Phospholipase A2 and its Application in the Determination of Catalytic Activity of Oil-Body–Associated Oleosin Protein. *Food Analytical Methods*, pp.1-8
- [22] Tomar, M., Bhardwaj, R., Verma, R., Singh, S.P., **Krishnan, V.**, Kansal, R., Yadav, V.K., Praveen, S. and Sachdev, A (2022) Interactome of millet-based food matrices: A review. *Food Chemistry*, p.132636.
- [21] Kumar, R.R., Singh, S.P., Rai, G.K., **Krishnan, V.**, Berwal, M., Goswami, S., Vinutha, T., Mishra, G.P., Satyavathi, C.T., Singh, B. and Praveen, S (2022) Iron and Zinc at a cross-road: a trade-off between micronutrients and anti-nutritional factors in pearl millet flour for enhancing the bioavailability. *Journal of Food Composition and Analysis*, p.104591
- [20] Vinutha, T., Kumar, D., Bansal, N., **Krishnan, V.**, Goswami, S., Kumar, R.R., Kundu, A., Poondia, V., Rudra, S.G., Muthusamy, V. and Prashat, G.R (2022) Thermal treatments reduce rancidity and

- modulate structural and digestive properties of starch in pearl millet flour. *International Journal of Biological Macromolecules*, 195, pp.207-216.
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 - [18] **Krishnan, V.**, Awana, M., Singh, A., Goswami, S., Vinutha, T., Kumar, R.R., Singh, S.P., Sathyavathi, T., Sachdev, A. and Praveen, S (2021) Starch molecular configuration and starch-sugar homeostasis: Key determinants of sweet sensory perception and starch hydrolysis in pearl millet (*Pennisetum glaucum*). *International Journal of Biological Macromolecules*, 183, pp.1087-1095.
 - [17] **Krishnan, V.**, Mondal, D., Thomas, B., Singh, A. and Praveen, S. (2021) Starch-lipid interaction alters the molecular structure and ultimate starch bioavailability: A comprehensive review. *International Journal of Biological Macromolecules*, 182, pp.626-638
 - [16] Ramesh, S.V., **Krishnan, V.**, Praveen, S. and Hebbar, K.B. (2021) Dietary prospects of coconut oil for the prevention and treatment of Alzheimer's disease (AD): A review of recent evidences. *Trends in Food Science & Technology*, 112, pp.201-211.
 - [15] Tomar, M., Bhardwaj, R., Kumar, M., Singh, S.P., **Krishnan, V.**, Kansal, R., Verma, R., Yadav, V.K., Ahlawat, S.P., Rana, J.C. and Satyavathi, C.T. (2021) Development of NIR spectroscopy-based prediction models for nutritional profiling of pearl millet (*Pennisetum glaucum* (L.) R. Br: A chemometrics approach. *LWT*, 149, p.111813.
 - [14] Tomar, M., Bhardwaj, R., Kumar, M., Singh, S.P., **Krishnan, V.**, Kansal, R., Verma, R., Yadav, V.K., Ahlawat, S.P., Rana, J.C. and Bollinedi, H (2021) Nutritional composition patterns and application of multivariate analysis to evaluate indigenous Pearl millet ((*Pennisetum glaucum* (L.) R. Br.) germplasm. *Journal of Food Composition and Analysis*, 103, p.104086.
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 - [12] **Krishnan, V.**, Rani, R., Awana, M., Pitale, D., Kulshreshta, A., Sharma, S., Bollinedi, H., Singh, A., Singh, B., Singh, A.K. and Praveen, S. (2021) Role of nutraceutical starch and proanthocyanidins of pigmented rice in regulating hyperglycemia: Enzyme inhibition, enhanced glucose uptake and hepatic glucose homeostasis using in vitro model. *Food Chemistry*, 335, p.127505.
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b) Book Chapters

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- [13] Somnath Mandal, Nandita Sahana, S.V. Ramesh, **Krishnan V** (2023) Food Omics and Its Implications in Nutritional Sciences Nutritional Science and Technology: Concept to Application (245-272); Wiley <https://doi.org/10.1002/9781394229116>
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- [09] Mandal S., Sahana N., Ramesh S.V., Krishnan V. (2023). Food Omics and Its Implications in Nutritional Sciences ,Nutritional Science and Technology: Concept to Application , pp 245-272.
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- [07] **Krishnan V**, Awana M, Singh A, Praveen S, Banerjee B, Devi P, Sharma SK (2022) Black rice (chapter 9), Book title: super foods and its importance in our daily diet (volume III), Editors: Dr. latika Yadav, Kripa-Drishti publications, Pune. ISBN 978-93-94570-18-4
- [06] **Krishnan V***, Awana M, Mondal D, Verma P, Singh A and Praveen S (2022) Binary interactions and starch bioavailability: Critical in limiting glycemic response (Eds) Starch - Evolution and Recent Advances. IntechOpen. <https://doi.org/10.5772/intechopen.101833>

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- [03] **Krishnan V**, Hasan M, Awana M, Singh A (2022) Chapter 8: Abiotic stress and its role in altering the nutritional landscape of food crops, pp. 141-168. Advancements in developing abiotic stress-resilient plants (Eds R. Khan, M.I., Reddy, P., & Gupta, R), CRC Press, USA ISBN 9781003159636; <https://doi.org/10.1201/9781003159636>
- [02] Singh A, **Krishnan V**, Vinutha T. and Kumar S (2018) Chapter 5: Biochemical, Physiological, and Molecular Approaches for Improving Salt Stress Tolerance in Crop Plants, pp. 159-208. Innovations in Agricultural & Biological Engineering, In: Engineering Practices for Management of Soil Salinity: Agricultural, Physiological and Adaptive Approaches (Eds. Gupta S.K., and Goyal M.R. and Singh A.). Apple Academic Press, CRC Press, Tayler & Francis Group, USA <https://doi.org/10.1201/9781351171083-21/>
- [01] T. Vinutha, Gupta OP, Prashat RG, **Krishnan V**, Sharma P (2014) Chapter 18: Molecular mechanism of Begomovirus evolution and plant defense response, (Eds Gaur R.K., Thomas Hohn, Pradeep Sharma). Plant Virus-Host Interaction, Academic Press, USA <https://doi.org/10.1016/B978-0-12-411584-2.00018-4>

PATENTS

- [3] **Applied** Indian patent on Physico-Enzymatic Cyclization Based Optimization for Producing Smart Flour Enriched with Retrograded Resistant Starch Type III (Developers: Archana Singh & **Veda Krishnan**)
- [2] **Applied** Indian patent on Gel-diffusion-based strip assay for pullulanase activity determination linked to RS screening (Inventors: **Veda Krishnan**/Archana Singh, Monika Awana, Alka Joshi,)
- [1] **Granted** Indian Patent no:341699 for Plant transformation vector for low phytate trait suppressing MIPS gene expression

PRODUCTS/MODELS/ACCESSIONS

[1] Commercialized products:

- o RR Kumar, Goswami S, Vinutha T, Singh A, Bansal N, Rudra S, Mishra GP, **Krishnan V**, Tyagi A. "DIVINE DOUGH," has officially been licensed to Melwach Enterprises on 13th Feb, 2024
- o Kumari Si, Prathiwiraj A, Madhunisha C., Dahuja A, **Krishnan V**, Vinutha T, Maheshwari C , Tyagi A, Sureja AK, Monika Rai (2023) Provitamin A rich carrot powder> Proceeding No.23-14/ITMC/ZTM/2023
- o Praveen S, Vinutha T., Goswami S, Kumar RR, Singh A, **Krishnan V.**, Rudra SG (2021) Developed 'Low GI wheat flour' using soluble fiber formulations and commercialized to Arpan Nutrition Pvt. Ltd, ND, India. Proceeding No. 23-14/ITMC/ZTM/2021

- o Praveen S, Vinutha T., Goswami S, Kumar RR, Singh A, **Krishnan V.**, Rudra SG (2022) Developed “Nutri-Grain Multi-millet Atta” and commercialized to Arpan Nutrition Pvt. Ltd, ND, India. Proceeding No. 23-14/ITMC/ZTM/2023, dated 9.03.2022
- [2] Protein models** - Protein models of various phytate biosynthetic enzymes were generated and submitted in protein model database (GmITPK1 – PM0079572; GmITPK2 – PM0079933; GmITPK3 – PM0079934; GmITPK4 – PM0079935)
- [3] Bio projects and accessions:**
 - o Transcriptome analysis during seed development of Glycine max was carried out by microarray and 4463 accessions were submitted as Bioproject no: GSE69821
 - o *Glycine max* cultivar Pusa 16 inositol-1,4,3-tris phosphate 5/6 kinase mRNA, complete cds of four different isoforms were cloned and submitted in NCBI - KF913641.1 (GmITPK1), KJ579138.1 (GmITPK2), KJ136819.1 (GmITPK3), and KJ413159.1 (GmITPK4)
 - o Shiitake accessions -
- [4] Copy right:**
 - o Sugar Coaster - Sugar Coaster-a nutritional web-based board game to alert the Glycemic Index of food. No-SW-19179/2024
- [5] Variety:**

Pearl millet Hybrid Pusa 1801 (MH2417) developed as a collaborator [PPMA1302xPPMI1239]

HONORS AND AWARDS

- o Offered an honorary nil salaried position as Adjunct professor at Department of food Science and Human Nutrition, University of Manitoba, Canada for 2025-2028.
- o INSA Woman associate founding member 2025 [One among the 70 selected women associates for the founding batch of Indian National Science Academy]
- o Executive Committee Member of Global Young Academy (GYA) (2025-2026) [Only elected Indian representation in the committee]
- o ICAR-IARI best young scientist award (Female) 2024-2025
- o NASI Member in Biological Sciences 2024 [Selected in Biochemistry]
- o INSA - Young Associate Fellow 2024 [Selected in Agriculture]
- o Master’s student received Mr. Mohammed Salman bagged IARI Merit medal award - Feb, 2025
- o Letter of appreciation from Professor, Biochemistry for Hatrick gold medals in Masters in Biochemistry, IARI (2025)

- o Editorial board member of Pusa Krishikasha since 2025
- o Recognition for guide - Mr. Mohammed Salman recieved the Best Oral Presentation award for “A novel nanosensor-ML-based system for accurate glycemic index prediction in nutritional science”. In the 56th Nutrition Society of India Annual National Conference. November, 2024
- o Recognition for guide - Mr. Mohammed Salman recieved the Best Poster Presentation award for “Phenotyping platform for glycemic index analysis of food: Integration of optimized in vitro model, V₂O₅-based gluco-nanosensors, and machine learning”. In the International Conference on “Biotechnology – The Way Forward” organized by the University of Kerala, 20-22, November, 2024
- o Editor Frontiers in Nutrition -
<https://www.frontiersin.org/research-topics/47397/nutraceutical-starch-impact-of-processing-and-innovative-trends/magazine>
- o Completed LEADS 2024 jointly organized by Indian National Science Academy -INSA and National Centre for Good Governance, Government of India (April 1-7, 2024)
- o Selected member of Global Young Academy (GYA)-2024; First in Agriculture from India (2024)
- o Best poster award at Joint International Conference on “Millets for food security: Sustainable resilience to climate change, pests and diseases at Aligarh Muslim University - Poster title - Molecular Structural cues for the digestive heterogeneity of pearl millet. Pandey S, Goswami D, Vinutha T, Goswami S, RR Kumar, S.P Singh, Veda Krishnan* (Feb,2024)
- o Media Coordinator and Jury of Young Scientist Conclave DST-India International Science Fetsival in 2023 (2024, Feb)
- o National Coordinator Young Scientist Conclave DST-India International Science Fetsival in 2023
- o Master’s student Mr. Suvarghya Chakraborty received IARI Merit medal award - Feb, 2024
- o Nominated by VC, ICAR-IARI for meeting of Hon’ble President of India with teachers of Higher Education Institutions on 5 September 2023 on the occasion of Teacher’s Day
- o Elected as Secretary INSA-INYAS in Feb, 2023
- o Selected as Fulbright Ambassador for change (among 26 fellows of 2021) and Video was prepared by USIEF portraying the research journey on 15th Feb, 2023
- o Resource person and speaker at International Women’s Day - Sharing the life journey of women scientists of India in healthcare industry on 9th March, 2023 at Amity University
- o Completed Coursera certificate course on clinical trials from John Hopkins University, USA - Design and Conduct of Clinical trials in 2023
- o Editorial board member of prestigious journal – Journal of Food Biochemistry, IF-3.654 (Wiley) in 2022

- o Selected to participate in Nature Communication Early Career Researcher (ECR) peer reviewing programme in 2022
- o Zonal Technology Management & Business Planning and Development Unit of ICAR-IARI has been assigned to be Mentor for Unify Insect Technology (OPC) Pvt.Ltd since 11th October, 2022
- o Co-authored the research paper entitled “Retrogradation strategies to enhance resistant starch type III (RS III) to ensure nutri-commercial value of rice flour” for second prize in the best poster award at National Symposium on Emerging Innovations in Plant Molecules for Achieving Food and Nutritional Security (EIPMAFNS), September 22-23, 2022 organized by Department of Plant Molecular Biology and Biotechnology, ACHF, NAU, Navsari & Division of Biochemistry, ICAR-IARI, New Delhi in association with Society for Plant Biochemistry and Biotechnology, IARI, Pusa Campus, New Delhi
- o Fulbright-Nehru Postdoctoral fellowship (2021-2022)
- o Master’s student received the NABARD-Professor VL Chopra Gold Medal & Best Student of the Year award of ICAR-Indian Agricultural Research Institute (2022)
- o Member of Indian National Young Academy of Sciences (INYNAS) (2021-2025) – One of the three young scientists (<40yrs) selected from the field of agriculture in 2021 at the country level.
- o Profile was highlighted in the “WE Compendium” formulated on women trail blazers by INSA-INYNAS in 2021.
- o Master’s Student, Mr. Sohel Rahaman received Research grant (2 lakhs) for Master’s thesis under World bank-ICAR funded National Agricultural Higher Education Project (NAHEP-CAST)
- o Best Innovator Award at Flora Fauna Summit (2021), ND, India
- o People Choice award at International Sci-art competition (2021) organized by INSA-INYNAS, Bangladesh Young Academy of Sciences and Japanese Young Academy of Sciences
- o Pearl millet Team award - as a member of Multi-Disciplinary Research Involving Basic, Strategic, and Applied Research in Different Disciplines of Agriculture with respect to Pearl Millet from All India Coordinated Research Project (AICRP) for Pearl Millet (2019-20)
- o Certificate of appreciation as a member of Multi-Disciplinary Research Involving Basic, Strategic and Applied Research in Different Disciplines of Agriculture with respect to Pearl Millet from All India Coordinated Research Project (AICRP) for Pearl Millet (2020-21)
- o Selected by American Society of Plant Biologists as Plantae Fellow in (2020) and ASPB-SURF mentor
- o Research work on Starch quality was highlighted as cover page of “Indian Journal of Experimental Biology” Vol. 58:830-841, December (2020)
- o Young Woman Scientist Award at 2nd International Conference on recent advances in agricultural, environmental, and applied sciences for global development (2019)
- o IASc-INSA-NASI Indian Science Academy-sponsored summer research fellowship (2019)

- o Best Oral talk at National Conference on Integrative Plant Biochemistry and Biotechnology (2019)
- o Young Scientist Award by Indian Society of Plant Physiology (ISPP) at 4th International Plant Physiology Conference (2018)
- o Best poster presentation award with cash prize at 4th India International Science Festival (IISF) (2018)
- o Certificate of excellence EET-Expo Edu Awards as young faculty (2015)
- o Young Scientist Award at International Conference of Radiation Biology organized by Ministry of defence & DRDO (2014)
- o First position in Agricultural Research Service (ARS) examination in Plant biochemistry (2010)
- o National Merit Scholarship (CSIR-JRF/NET cleared with All India Rank – 130; GATE-Life science qualified)
- o University First position and gold medal during Masters in Biotechnology (2008)
- o Best Master's thesis Award (GPA 10/10; 2008)
- o University second position and silver medal during bachelor's degree in Botany and Biotechnology (2006)

OTHER ACADEMIC/RESEARCH QUALIFICATIONS

- o Certification courses CITI programs at Purdue University, IN, USA [Responsible conduct of research (44594158), working with IACUC for animal research (44594159), animal biosafety/biosecurity (44594161), working with mice in research (44594157), Human research – biomedical research investigators and key personnel (44594160)]
- o Certification program in science journalism (2018-2019): Indian Science Communication Society (ISCOS) TCSJ/25/34, UP, India

TEACHING

Courses taught for undergraduates (2016-2023) – Bio504 - Techniques in biochemistry; Bio602 – Protein Biosynthesis; Bio606 – Intermediary metabolism; Bio601 – Nucleic acids; Biochem505- Techniques; Bio602-Immunochemistry

Courses taught for graduates (2016-2023) – Bio702 – Genomics, Proteomics and Metabolomics; Bio 603 – Genetic Engineering Principles and Methods; Industrial Biochemistry Bio 604 – Current Topics in Biochemistry; Bio 603 – Genetic Engineering Principles and Methods; Bio 702 - Bio702 – Genomics, Proteomics and Metabolomics; Bio703 – Industrial Biochemistry; Bio 506 - immunochemistry

Courses taught for undergraduates (2019-2023) – Bio 502 – Nutritional Biochemistry; Bio703 – Industrial Biochemistry; Bio 603 – Genetic Engineering Principles and Methods; Bio606 – Intermediary metabolism; Bio 607 – Advanced Techniques in Biochemistry; Bio 505 – Techniques in Plant Physiology and Biochemistry, Zoo101 - Zoology for Btech Biotechnology.

(~45 lectures and 30 practical sessions per year)

COURSE LEADER: Immunochemistry & Animal Biochemistry

Assistance in Edu-tutorials

Assisted as content creator for e-PG Pathshala [an initiative of the MHRD under its National Mission on Education through ICT (NME-ICT) being executed by the UGC]

- Two modules (Enzyme kinetics and enzyme inhibition) in the area of Protein Biochemistry and Enzymology
- Two modules (Catalytic antibodies and ribozyme) in the area of Protein Biochemistry and Enzymology

Assisted as content reviewer for ICAR NAHEP-CAAST programme based edu-tutorials for the Course Intermediary Metabolism

INTERNATIONAL ASSIGNMENTS IN TEACHING

- ✓ Delivered a talk on Millets in the Master's course - Plant Food Science, Department of Molecular Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden in Feb 2023 and 2024.
- ✓ Initiatives taken to sign Material Transfer Agreement (MTA) between Agriculture and AgriFood – Canada (AAFC) & ICAR-IARI for starch digestibility analysis using dynamic gastric model.

STUDENTS

Ph.D. Student: Mr. Chinmaya Behera, working on Glycemic indices and use of AI models for prediction (projected graduation date, March 2028)

Ph.D. Student: Ms. Rahna Fathima, working on millets and their effects in satiety (projected graduation date, March 2028)

Ph.D. Student: Ms. Deepanyeta Goswami, working on Optimization, characterization and elucidation of structure-digestibility relationship of slowly digestible starch (SDS) for developing bio-functional foods (projected graduation date, March 2025)

Master's Student: Mr. Mohammed Salman, working on developing sensors for measuring glycemic potential (projected graduation date, March 2025)

Masters Student: Mr. Shuvarghya Chakraborty, working on Extraction and characterization of potent anti-diabetic functional polysaccharides from Shiitake (projected graduation date, March 2024)

Masters Student: Ms. Debarati Mondal, completed work on Starch-lipid interactions and its effect on glycemic potential (Graduated on March, 2022 and bagged first NABARD-Professor V.L. Chopra Gold Medal Award of the Year 2021 and Best Student of the Year 2021)

Masters Student: Mr. Sohel Rahaman, completed work on developing starch quality matrix (SQM) to identify fibre rich Indian rice varieties with low glycaemic potential (Graduated on March, 2021 and bagged world bank funded-NAHEP CAAST partial grant)

Master's thesis work: Mr. Haris Iqbal from Department of Biosciences, Faculty of Natural Science, Jamia Millia Islamia, New Delhi, India completed thesis research work on Beyond amylose content, variables to identify high resistant starch (RS) rice (Graduated in 2017)

SUMMER INTERNS:

Ms. Agrima Viraj who is pursuing Bachelors in BioScience, Banasthali Vidyapith, Jaipur underwent 1 month internship 6th June-26th July, 2024 through IARI

Ms. Sneha pandey who is pursuing Masters in Food Science and Technology, Guru Nanak Dev University, Amritsar underwent 8 months internship Oct 2023 -May 2024 through IARI

Ms. Muskan Beura who pursuing Master's in Plant Science at Central University of Kerala underwent Eight and a half months training (IARI mentorship programme - ZTMBCPD)

Ms. Aditi Singh worked nutri-game application called - Sugar Coaster (Three months, 2023)

Ms. Madhurpreet Kaur worked on Starch degradation heterogeneity between pigmented and non-pigmented rice varieties using starch hydrolyzation kinetics (Three months; 2019).

Ms. Devika who pursued masters in Food Science at MACFAST, Thiruvalla, Kerala completed a summer internship on structure-activity relationship of cereal phenolics (Three months; 2018).

Ms. Sakshi Jindal got research training for 5 months (Jan-May, 2019)

VIRTUAL INTERNS:

Ms. Taru Rajput worked on dietary fibers and their role in lowering glycemic potential of food as a Department of Science and Technology, Rajasthan – (Knowledge Augmentation through Research in Young Aspirants (KARYA) fellow (2021, four weeks)

Mr. Piyush Verma nominated through Young Academy of India (YAI) 2021-2022, worked on molecular docking of bioactive and their potential carbolytic enzyme inhibitory effect and collaborative effort was published as **Krishnan, V., Verma, P.,** Saha, S., Singh, B., Vinutha, T., Kumar, R.R., Kulshreshta, A., Singh, S.P., Sathyavathi, T., Sachdev, A. and Praveen, S., 2022. Polyphenol-enriched extract from pearl millet (*Pennisetum glaucum*) inhibits key enzymes involved in postprandial hyperglycemia (α -amylase, α -glucosidase) and regulates hepatic glucose uptake. *Biocatalysis and Agricultural Biotechnology*, p.102411.

Ms. Bipsa Banerjee, nominated through Young Academy of India (YAI) 2021-2022, worked on binary and ternary interactions and their effect on glycemic response.

OTHER

1. Editorial committee member, IARI graduate new letter Pusakrishishiksha 2025
2. Editorial Committee for the Graduate School Newsletter IARI 2025
3. Invite as consultant for Regional Consultation I Analyzing Global Commitments on Food Security and Diets: Implications for South Asian Countries on Feb 2, 2024
4. Member secretary DBRC - 2023-2024
5. Member secretary BoS - 2022

6. External examiner Viva-voce for MSc Molecular Biology & Biotechnology candidate from ICAR-IIAB on 20th July, 2022
7. Seminar leader 2021-2022
8. External examiner Viva-voce for MSc Science Communication candidate of ACSIR (Msc student Mr Tausif A Sayed) on 19th August, 2022
9. Tutorials, Cross words and Bio puzzles were also framed for interactive sessions in Bio603
10. Prepared edu-materials for various courses as notes, CDs, power points etc

TRAININGS

S.No	Name of the training	Duration and dates	No. of trainees	Funded by
TRAININGS ORGANIZED				
	Work Industry Neutral Growth Skills (WINGS) 2024 at IIT Bombay	Aug 8-10, 2024	Attendees 40	INIAS, DST and sponsors
	Application of Molecular and Genomic Tools for Biofortification in Crops (Coordinator)	March 5-7, 2024	Attendees 25	SERB-CRG SSR
	DST-Karyashala - Food Matrix Characterization techniques: Nutrients to nutrient bioavailability (Coordinator)	March 19-23rd, 2024	Attendees 25	SERB-Karyashala
	CAFT-2023 - "Agri-derived nutrients and nutraceuticals: Tools and strategies (Coordinator)	15th Dec, 2023	Attendees - 20	ICAR-HRD
	Lecture/Interaction on "Biochemistry and its role in inventing a sustainable future (Coordinator)	15 th Nov, 2022	Attendees – 50+	Society for Plant Biochemistry and Biotechnology
	Wisdom workshop – Virtual workshop on women in scientific domain (Coordinator)	13 th Aug, 2022	Attendees – 200+	INSA-INIAS
	RuSETUP workshop at IIT Delhi & IARI (Coordinator)	9-10 th July, 2022	Attendees - 35	INSA-INIAS

	Journey of Pearl Millet - From Land to Lab to Plate [As a faculty was involved in the smooth organization of a virtual 12 days training] (Resource person)	-12 th March, 2021		ICAR-NAE
	Gene Editing and Phage Discovery (Coordinator)	21-22 nd Feb, 2020	Attendees - 13	DBT
	Nutrition, Immunity and COVID19 (Convenor)	30 th Sept, 2020		ICAR
	Center for Advance Faculty Training (CAFT) programme - 2019 Omics meet plant biochemistry: Applications in nutritional enhancement with one health perspective (Co-coordinator)	7-27 th September, 2019	Attendees - 27	ICAR
	CAFT - Plant Omics – Emerging tools and techniques for crop improvement (Resource person)	Nov 18 th -8 th Dec, 2015	Attendees - 23	ICAR
	Hands on training on RNAi: Concepts and its application in plant science (Resource person)	4 th – 13 th March, 2014	Attendees - 17	ICAR-HRD & ICAR-NASF
	CAFT- Functional Genomics and Proteomics- Techniques and Tool for Crop Improvement (Resource person)	12 th Nov-2 nd Dec, 2017	Attendees 25	ICAR
	CAFT - Advanced 'omics' techniques for improvements in plant and human health (Resource person)	15 th Nov - 5 th Dec, 2013	Attendees - 29	ICAR
TRAININGS ATTENDED				
S.No	Name of training	Date	Organization/venue	sponsorship
	WINGS 2024		IIT Bombay	DST
	LEADS 2024	1-7th April, 2024	INSA	ACS

	Panel discussion: what makes a paper really pioneering	8 th May, 2020	Online	Plantae, American Society of Plant Biologists
	Food structure and functionality symposium	20 th Oct, 2020	Online	EFFOST
	Immuno histochemical training	29 th July – 3 rd Aug, 2019	CSIR-Indian Institute of Chemical Biology	ICAR-HRD
	Socio-Economic Impact Assessment of S & T outcomes for women scientists/technologists	18-22 th Nov, 2019	CSIR-HRDC, Ghaziabad.	CSIR
	Indo-UK meet	7-9 th Nov, 2016	Taj Palace, New Delhi	BBSRC-UK
	Workshop on RNAi	5 th May 2015	National Institute of Plant Biotechnology	ICAR
	IBM-SPSS	25 th Feb 2014	ICAR-IARI	ICAR-IARI
	MIS training	25-26 th , Sept 2013	IASRI at ASRB centre, LBS building, Pusa Campus	ICAR-IARI
	Ovid SP data retrieval	25 th Oct, 2013	IARI library	ICAR-IARI
	ZTM-BPD annual Meeting-cum-Workshop	13-14 th January, 2012	CIRCOT, Mumbai	ICAR
	Workshop on functional foods	Feb, 2012	Division of Agrichemicals, IARI	ICAR
	Professional attachment training	Jan-April, 2012	Division of Biochemistry, ICAR-IARI	Self
	4 months foundation training (FOCARS-94)	15 th Sept-Dec, 2011	NAARM, Hyderabad	ICAR

	Workshop - National Symposium on current trends in stem cell biology	16 th Dec, 2007	Rajiv Gandhi Centre for Biotechnology, TVM	Self
	Workshop - Bioconcepts -Biotechnology intervention in environmental management	18 th Jan, 2005		Self

MEETINGS/EXTENSION/OUTREACH

- T20- Policy Brief Guideline submitted and accepted on 1st March, 2024 titled “Addressing Food Security, Nutrition Quality, and Environmental Sustainability: Diversifying the Use of Pearl Millet in Brazil - A Global Commodity Producer” [Subhasree Ray, Lead – Nutrition & Wellness, Reliance Industries Limited, Mumbai; Shoba Suri, Senior Fellow – Health Initiatives, Observer Research Foundation; Gloria Guevara Alvarez, MPPA, Public Health Policy and Management, NYU School of Global Public Health, Veda Krishnan, Senior Scientist, Nutrition Biochemistry, ICAR; Mahesh Rao, Senior Scientist, Plant Biology, ICAR; James Kwan, MBA, Professor, SP Jain School of Global Management, Singapore, Dhriti Gour, MPH, New York University, New York, USA]
- IARI green book 2024 compilation
- IARI code of conduct book compilation 2024
- Research Advisory Committee (RAC) through online mode for approval of the Ph. D. synopsis in respect of the following Ph. D. student Ms. Anjala registered at NIPGR on Feb5th, 2024.
- Regional Consultation I Analyzing Global Commitments on Food Security and Diets: Implications for South Asian Countries meeting on Feb 2 2024
- As a resource person delivered talk in the five days ADP on “Processed Food Products from Millets” from 4-8th Dec, 2023 organized by Zonal Technology Management and Business Planning and Development Unit and Division of Food Science and Post-Harvest technology, ICAR-IARI, Pusa
- Radiotalk on New frontiers in nutrition research: food omics and nutrigenomics" in Akashvani on 21st Sep, 2023
- Conducted Science awareness workshop on recent trends in health care research on 28th May 2022
- Organized workshop on “How to communicate your research to media” on 30th July, 2022
- Technology demonstration of nutrition and research processes utilized in basic science field related to the theme “Food, Nutrition and Environmental Security”: in Thematic Pandal of Krishi Vigyan Mela during March 02-04, 2023 at Mela Ground, Pusa Campus, New Delhi.
- Submitted comments on DBT draft on genome edited crops - ibkp2019@dbt.nic.in
- Member of cultural programme and invocation committee for 58th convocation, 2020, IARI
- Organized technical sessions associated with 58th convocation, 2020, anchored for professor’s presentation, Lal Bahadur Shastri and Hari Krishna Shastri lectures
- *Thematic Pandal committee member ‘Nutrition for health” (स्वास्थ्य के लिए पोषण) released during Krishi Mela 5-7 March, 2020 (ICNH178/2020).*

Popular articles/Meeting Note/E-articles

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2. Debdtut Manna, Rosalin Laishram, Monika Rai, Sweta Kumari, Veda Krishnan, Anil Dahuja (2025) Folate supplementation: Unlocking youthful vitality with an anti-aging solution. Emerging Science 17:Jan-March pp-9-13
3. Narwal S, **Krishnan V** and Tyagi A (2024) Biochemical Interventions for Nutri-Smart Food Products – Opportunities for Entrepreneurship Development. Krishimela souvenir 2024 IARI
4. Muskan Beura, Shuvarghya Chakraborty, Susheel Sharma, Anil Dahuja, Archana Singh & **Veda Krishnan*** (2023) Shiitake of India: Emerging Food-preneur and an unexplored source of mycoceuticals. Science Reporter (Accepted)
5. कंकन पंडित, ककरण मिश्रा, दीपान्येता गोस्वी, वेदा कृष्णन, अर्चना मंह* (2023) मिलेट फाइबर का आंत्र इक्रोबायियो पर प्रभाव (Accepted, Pusa Surbhi issue 20)
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12. Monica Jolly, Aashish Marathe, Smruti Saha, **Veda Krishnan**, Shelly Praveen and Archana Sachdev (2020) Hunger is not of food but of nutrition: Gene Editing is the Need. Emerging Science
13. मोनिका जॉली, वेदा कृष्णन, अर्चना सिंह, अर्चना सचदेव, शैली प्रवीण. “पिगमेंटेड चावल मे संशोधन द्वारा स्टार्च मूल्य संवर्धन: मानव पोषण में सुधार करने का वादा” in Prasardoot Hindi magazine, Special issuefor Krishi-mela 2020.
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20. मोनिका जौली, वेदा कृष्णन, विनुथा टी, महर्षि तोमर, शैली प्रवीण, अर्चना सचदेव (2019) स्वास्थ्य और रोग में बाजरा (*Pennisetum glaucum*) के संभावित कार्यात्मक निहितार्थ "krishi jagran. <https://hindi.krishijagran.com/farm-activities/health-benefits-of-millet/>
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22. Monica Jolly, Ashish Marathe, Urvi Mehrothra, **Veda Krishnan** and Archana Sachdev (2017) Soybean ek paushtik aahar. Pusa Surbhi
23. **Veda Krishnan** & Archana Sachdev (2017) Molecule that maketh the man – An interview with master organelle – Ribosome. Science Reporter
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27. **Veda Krishnan** (2013). Unlocking the secrets of secreted proteins. Emerging Science, 5(6):30-32
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- Vinutha T*, **Veda Krishnan***, Urmi Bajpai, P.N. Ramesh and Shelly Praveen (2020) Gene editing and phage discovery TB-ICN: 241/2020 (Equal first authorship).
- Extension Bulletin: Vinutha T., **Veda Krishnan**, Ranjeet Ranjan Kumar, Suneha Goswami, sneh Narwal, Archana Singh, Monika Jolly, Navita Bansal and Shelly Praveen (Biochemistry), Grijesh Mehra, Sangeetha V (Agricultural Extension), Sunil Pabbi (Microbiology), Amreesh Kumar Sureja (Vegetable Science), Amit Goswami (Fruit & Horticulture), Anita Srivastava (Chief Medical Officer, IARI) Nutrition for health (स्वास्थ्य के लिए पोषण) released during Krishi Mela 5-7 March, 2020 (ICNH178/2020).
- **Veda Krishnan**, Archana Singh, Susheel Sharma, Haritha Bollinedi, U Mabalirajan, Suneetha Kota, Sandeep Raja, A.K Singh and Shelly Praveen (2020) Nutrient Dense Pigmented rice; A diet for healthier people. TB-ICN:236/20193.
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- **Veda Krishnan**, Suresh Kumar and Shelly Praveen (2019) CAFT Manual on "Omics meet plant biochemistry: Applications in nutritional enhancement with one health perspective" TB-ICN: 221/2019, September 7-27,2019, Division of Biochemistry, ICAR-IARI, New Delhi, India.

- Ranjeet R. Kumar, Suneha Goswami, Vinutha T, **Veda Krishnan**, S Kumar, Anil Dahuja, Shelly Praveen (2019) Laboratory manual on genetic engineering: Principles and methods. Division of Biochemistry, ICAR-Indian Agricultural Research Institute (IARI), pp 1-144
- Archana Sachdev, **Veda Krishnan** and Monica Jolly, Phytic acid: A challenge for nutritional security and environmental health TB-ICN: 182/2018
- Vinutha,T., **Veda Krishnan**, Navita Bansal and Shelly Praveen (2017) Vitamin E- Nature's perfect antioxidant.TB-ICN:178/2017
- **Veda Krishnan**, Sunita Singh, Charanjit Kaur, Anil Dahuja and ShellyPraveen (2017) Anthocyanin: A premium functional superfood supplement. TB-ICN-175/2017.
- Archana Sachdev, Monica Jolly, **Veda Krishnan**, Awadesh Kumar, Sweta Kumari, Ashish Marathe, Alkesh Hada. Protocol for Agrobacterium Mediated Transformation of Soybean (2016). TB-ICN: 167/2016
- Manual on nucleic acids

Oral presentation (National & International Conferences)

1. Panelist in international session on “Analyzing the global commitments on food security and diet” by Rockefeller foundation, IFPRI and ORF on 2nd Feb, 2024.
2. Delivered talk in the thematic session on plant nutrition and food quality enhancement –IBACCI on “Gut taste what we eat:Sorghum proanthocyanidins & their role in gut-brain axis activation inducing satiety” on 31st Oct, 2023
3. Panelist for USIEF – 2023 pre-departure orientation at Kolkata on “Understanding US culture and cultural adjustments May 10-12th, 2023
4. Invited as Speaker to deliver a talk on the “Scope and opportunities in the field of biochemistry and biotechnology in the SSR activity of SERB-CRG project at ICAR-NIPB on 7th Nov, 2023
5. Delivered INSA-remote area lecture on “Leap into unknown, Revealing the mysteries of Research” on 4th Nov, 2023 at Jawahar Navodaya School, Ernakulam
6. Delivered Prof.V.A Mathew Memorial Endowment Lecture on “COMPLEXITY OF FOOD MATRIX AND NAVIGATION FROM DISCOVERY TO DELIVERY” at Newman's college Thodupuzha, Kerala on 3rd Nov, 2023
7. Invited speaker for Mera Yuva Bharat brain storming session - Speaker on session 5 in Mera Yuva Bharat – Ek Samvad on 28th oct, 2023 at IIT-Delhi organized by Ministry of Youth Affairs and Sports at IIT Delhi on 28th October, 2023
8. Delivered a lead lecture in Indian Mushroom Conference-2023 on “Mushroom diversity and diversification: Opportunities and Challenges” at KAU, vellayani, Trivandrum on 18-19th August, 2023 in lecture entitled” Nutraceutical potential of Shiitake mushroom (Lentinula edodes): Lentinans and ergosterol.
9. Delivered an invited lecture in the 5 day high end international workshop on “Key enabling technologies in millet: Agri (Farm) to Food processing (Folk) (KETM-23)” scheduled on from 5-9 June 2023” at NIT Rourkela.

10. Delivered a talk on “Insight O National” interaction series in association with National College and INYAS on 22nd August, 2023
11. Delivered a talk cum interaction with IISER Trivandrum students on grants and fellowships on 21st August 2023
12. Talk delivered on “Food Matrix: Concept, tools and techniques for nutrient bioavailability” on 25th January, 2023 in Training programme on tools and techniques for analysis of bio-molecules held during Jan18-31, 2023.
13. Industry interaction – Dr. Beena Rai, Chief Scientist, TCS visited and interacted with Food Matrix Lab for possible collaboration in Oct, 2023
14. Oral talk and hands on training at Fostering Education in Science and Technology (FEST) 29th Sept-1st Oct, 2023 at IIT Delhi
15. Conducted grant writing and panel discussion on “Agri-Food-Health nexus: Role of sustainable innovations” during CAFT training on “Agri-derived nutrients and nutraceuticals for innovative health foods: Tools and strategies” held from 15 December, 2023- 04 January 2024 in the Division of Biochemistry, ICAR-IARI, New Delhi.
16. Delivered a talk on Career navigation in plant sciences on Bioingene webinar on 9th March 2023
17. Delivered a talk at Young Scientist Conclave of IISF 2023 on the theme Food Security and Agriculture on 17th January 2024
18. Acted as a resource person and delivered talk in five days ADP on “Processed Food Products from Millets” from 4-8th Dec, 2023 organized by ZTM-BPD and Division of Food Science and PHT, ICAR-IARI
19. Delivered a talk on “Dimension of starch quality and its implications” on Feb 11th, 2023 at Food Chemistry and Technology Laboratory, IIT Kharagpur
20. Delivered a keynote speech at International workshop on “Key Enabling Technologies for Sustainable Agri-Food Chain” held at NIT, Rourkela during Dec9-10th, 2022 on “Gut tastes what we eat: can we innovate food for health”
21. Delivered an oral talk at an International conference on advances in agriculture and food system towards sustainable development goals (AAFS) on Food matrix interactions, micro structure and molecular configuration of starch contributes to ‘Low glycemic nature of pearl millet’ held at UAS, Bangalore on 22-24th Aug, 2022
22. Delivered an invited talk for Canadian Centre for Agri-Food Research in Health and Medicine (CCARM) in the CCARM seminar series on ‘Food for thought’ on Sept, 27th 2022.
23. Whistler center research update presentation was delivered on ‘Monomeric proanthocyanidins delay starch digestibility and activate gut-brain axis by sweet-bitter signaling’ on 4th March, 2022 at Purdue University, IN, USA
24. As a resource person delivered talk on “Tips for writing a good application for Fulbright-Nehru and Fulbright-Kalam postdoctoral fellowships on 29th July, 2022 organized by USIEF
25. Delivered talk titled “Millets: Connecting dots from nutrition to health implications” on technical symposium on Basic Science and Technology for Sustainable Development BSSD-2022 at BARC, Mumbai on Food & water for future during Sept 16-18th, 2022

26. Student interaction cum talk at ICT, Matunga Mumbai on Sept 16th, 2022
27. Talk delivered on “Shiitake Mushrooms: Food for Future on 02nd Nov, 2022 in 21 days CAFT program on “Food processing technologies: developing smart food for boosting human health and agripreneurship from 01-21st Nov, 2022
28. Talk delivered on “Functional food - Food 4 Future (F4F) and its role in SSR” in a two-day workshop for college faculty on the Scientific Social Responsibility (SSR) component of DST projects from 20th - 21st Dec 2022 at ICAR-Central Tuber Crops Research Institute, Sreekariyam, Trivandrum
29. Dr. Veda Krishnan Scientist, Div. of Biochemistry, ICAR-IARI, New Delhi for sharing her valuable knowledge as ‘Invited Speaker’ during the training programme on ‘Journey of Pearl Millet- From Land To Lab To Plate’ organized by Division of Biochemistry, ICAR-IARI, New Delhi during 01st -12th March, 2021 under the Niche Area of Excellence Scheme of Indian Council of Agricultural Research
30. Delivered a lecture as Guest Speaker during “International Women’s Day” on topic “Women in Leadership: Achieving an Equal Future in a Covid-19 World” held on 08th March, 2021 Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu
31. Speaker at the SPBB conference and delivered talk on Functional Foods, Bioactive Compounds and Phytochemicals for Better Nutrition. Somnath Mandal & Nandita Sahana, Department of Biochemistry, Uttar Banga Krishi Viswavidyalaya (UBKV) & SPBB Dec 9-11, 2020
32. Invited talk delivered in ‘Young science leader series’ titled ‘Rolling stone gathers moss’ (Aug 2nd, 2020)
33. Webinar talk delivered on ‘Functional foods: Composition, matrix interactions/dynamics and bio-availability’ organized by Vigyan Prasar and G.N Ramachandran Science Club (Aug 11th, 2020)
34. Talk Vigyan Prasar and G.N Ramachandran Science Club by MACFAST – Functional foods: Food matrix, composition, interactions and bioavailability 11th Aug, 2020
35. Delivered talk on ‘Black rice: from staple food to nutraceutical’ during CAFT-2019 on “Omics meet plant biochemistry: Applications in nutritional enhancement with one health perspective” on September 20th, 2019 at Division of Biochemistry, IARI, New Delhi
36. Delivered talk on ‘Healthier attributes of pigmented rice’ during CAFT-2019 on “Omics meet plant biochemistry: Applications in nutritional enhancement with one health perspective” during September 07th to September 27th, 2019 at Division of Biochemistry, IARI, New Delhi
37. Delivered talk on ‘Unraveling the starch hierarchy: The secrets behind its fine structure and digestibility’ during CAFT-2019 on “Omics meet plant biochemistry: Applications in nutritional enhancement with one health perspective” during October 10th, 2019 at Division of Biochemistry, IARI, New Delhi
38. Delivered talk on “Role of pullulanase: From inception to formation of inherent resistant starch in rice (*Oryza sativa*. L)” at National Conference on Integrative Plant Biochemistry and Biotechnology’ on 08-09 November, 2019, IIRR Hyderabad
39. As a panelist participated in panel discussion held on “F4F: Food for future, Millets Key supplements to staple grains organized at Division of Biochemistry ICAR-IARI, to discuss the nutritional qualities of pearl and finger millets, October 2019, Division of Biochemistry, IARI, New Delhi.

40. Delivered talk on 'Healthier attributes of pigmented rice' during CAFT-2019 on "Omics meet plant biochemistry: Applications in nutritional enhancement with one health perspective" during September 07th to September 27th, 2019 at Division of Biochemistry, IARI, New Delhi
41. Delivered talk on "Role of pullulanase: From inception to formation of inherent resistant starch in rice (*Oryza sativa*. L)" at National Conference on Integrative Plant Biochemistry and Biotechnology' on 08-09 November, 2019, IIRR Hyderabad
42. Oral Invited talk on "Healthier attributes of pigmented rice" on ICAR training on Omics meet plant biochemistry: Applications in nutritional enhancement with one health perspective" September 07th to September 27th, 2019
43. Oral talk on Role of pullulanase: from inception to formation of inherent resistant starch in rice (*Oryza sativa*.L). Krishnan V, Awana M, Samota MK, Warwate SI, Kulshreshtha A, Bollinedi H, Singh AK, Praveen S, Singh A pp-31-32 , National conference on integrative plant biochemistry and Biotechnology 8-9th Nov, 2019
44. Oral Invited talk on "Starch fine structure and digestibility – A key to fine tune energy release" on ICAR training on - Tools and Techniques for Analysis of Biomolecules which was from Sept 5th-Sept 18th, 2017
45. Oral Invited talk on "Metabolic pathway engineering for food and nutritional security" in CAFT training on Plant *Omics* – Emerging tools and techniques for crop improvement which was from Nov 18th – Dec 8th, 2015.
46. Invited oral talk delivered on "How to go to unknown; revealing the mysteries of research" at MACFAST, School of Biosciences, Thiruvalla, Kerala on March 2nd, 2015
47. Key note address delivered on National science day on "Metabolic engineering for food security" at MACFAST, School of Biosciences, Thiruvalla, Kerala on Feb 28th, 2015
48. Oral talk delivered – Ashish Marathe, Veda Krishnan, Alkesh Hada, Nabaneeta Basak, Vanita Pandey, Mansi Punjabi, Monica Jolly and Archana Sachdev. "Molecular and in silico characterization of Gmitpk2 – A promising candidate towards 'Low phytate soybean' poster presentation at South Asian biotechnology conference on Feb 12-14th, 2015 at South Asian University, New Delhi, India
49. Oral talk delivered - Veda Krishnan. at National symposium on germplasm to genes: Harnessing biotechnology for food security and health on August 9th – 11th 2015
50. An invited oral lecture delivered on "Transgenic crops boon or bane" – at Hands on training on RNAi: Concepts and its application in plant science on 8th March, 2014 at IARI, New Delhi, India
51. Oral talk delivered - Alkesh Hada, Amit Kumar Gupta, Mansi Punjabi, Veda Krishnan, Monica Jolly, Andy Ganapathi and Archana Sachdev. "Assessment of conditions affecting Agrobacterium-mediated soybean transformation using glufosinate selection in the cotyledonary-node method" Oral Presentation at International Congress on "Agriculture, Food Engineering and Environmental Sciences- Sustainable Approaches" (AFEESA- 2014) on March 29th – 30th 2014 at Jawaharlal Nehru University, New Delhi, India
52. An invited talk delivered on "India Gaining Weight – Plant foods to tackle obesity" on 23rd Sept, 2013 at Mannam International center, New Delhi.
53. Oral talk delivered - Alkesh Hada Sweta Kumari, Veda Krishnan, Monica Jolly & Archana Sachdev "Bioavailability of essential minerals and phytase activity during soaking and seed germination in Soybean (*Glycine max.*)", oral presentation in International conference on role of plant biochemistry and biotechnology in food and nutritional security, Dec 11-14th, 2013, Shri Venkateshwara University, Tirupati, India

CONFERENCE (Abstract/Poster)

Authors	Conference/ Symposium	Abstract/O ral/ Poster	Title of paper	Date & year	Remarks
Goswami D, Singh A and Krishnan V	International Conference on Biochemical and Biotechnologic al Approaches for Crop Improvement (IBBACI)	Poster ABSTRACT ID: IBBACI2023 _ABS_R472 3, Pg.122	Carbohydrate Quality Indices in Minor Millets: Key towards functional health food.	October 30-Nove mber 01, 2023	Nil
Chakraborty S, Sarda Devi K, Sharma SK, Singh RK, Singh A, Dahuja A and Krishnan V	International Conference on Biochemical and Biotechnologic al Approaches for Crop Improvement (IBBACI)	Poster ABSTRACT ID: IBBACI2023 _ABS_P123 8, Pg.236	Three-dimensio nal structure of Lentinan (LNT) from Indian Shiitake (<i>Lentinula</i> <i>edodes</i>) and its anti-diabetic potential	October 30-Nove mber 01, 2023	Nil
Mandal S, Awana M , Thakre SS , Yasin M , Jaiswal P ,Chawala G , Krishnan V , Singh A	International Conference on Biochemical and Biotechnologic al Approaches for Crop Improvement (IBBACI)	Poster ABSTRACT ID:IBBACI2 023_ABS_U 5569, Pg. 260.	Matrix to Metabolism (M2m): Enhancing RS III for Improved Health	October 30-Nove mber 01, 2023	Nil
Pandey S, Goswami D, Vinutha T, Goswami S, Kumar RR, Singh SP, Krishnan V	Joint International Conference on “Millets for Food Security: Sustainable Resilience to Climate Change, Pests and Diseases”	Poster	Molecular Structural Cues for Digestive Heterogeneity in Pearl Millet	FEB 21-22, 2024	FIRST PRIZE-BEST POSTER AWARD
M. Beura,S. Chakraborty, C.S Keerathana, K.S. Devi, S.K.	IISF-poster	YSC11277	Exploring traditional therapeutics for reframing trends	Feb 2024	

Sharma, R. K. Singh, A. Singh, A. Dahuja and Veda Krishnan*			in diabetes management from Indian Shiitake		
S. Chakraborty, M. Beura, K.S. Devi, S.K. Sharma, R. Singh, A. Singh, A. Dahuja and Veda Krishnan*	Indian Mushroom Conference 2023	Best poster award	Structural conformation-dependent anti-diabetic activity of Indian Shiitake	18-19th aug, 2023	at KAU, Trivandrum
Millet Conference, Kerala					RAJAGIRI COLLEGE
Deepanyeta Goswami, Archana Singh, Vinutha T., Shalini Gaur Rudra, Anjali Anand and Veda Krishnan*	National symposium on Emerging Innovations in Plant Molecules for Achieving Food and Nutritional Security (EIPMAFNS-2022)	Abstract Pg.109	Slowly digestible starch (SDS): process optimization and structure-digestibility relationship.	September 22-23, 2022	
Debarati Mondal, Monika Awana, Shilpi Aggarwal, Debarup Das, Bejoy Thomas, S.P. Singh, Tara Sathyavathi, Raman M. Sundaram, Anjali Anand, Archana Singh, Archana Sachdev, Shelly Praveen and Veda Krishnan*	National symposium on Emerging Innovations in Plant Molecules for Achieving Food and Nutritional Security (EIPMAFNS-2022)	Abstract Pg.69	Demystifying the key reasons behind the low inherent glycemic potential of Pearl millet: a comprehensive study involving microstructure, matrix composition and dynamics.	September 22-23, 2022	
Sanjeev Kumar, Deepanyeta Goswami, Susheel Kumar Sharma, Archana Singh,	National symposium on Emerging Innovations in Plant Molecules for	Abstract Pg.77	Ergosterol from Shiitake (Lentinula edodes): UPLC-based quick and easy method of quantification	September 22-23, 2022	

Anil Dahuja and Veda Krishnan*	Achieving Food and Nutritional Security (EIPMAFNS-2022)				
Shreya Mandal, Kangkan Pandit, Swapnil S. Thakre, Sunil Warwate, Monika Awana, Veda Krishnan and Archana Singh	National symposium on Emerging Innovations in Plant Molecules for Achieving Food and Nutritional Security (EIPMAFNS-2022)	Abstract Pg.105	Retrogradation strategies to enhance resistant starch type III (RS III) to ensure nutritional commercial value of rice flour.	September 22-23, 2022	
Shuvarghya Chakraborty, Sanjeev Kumar, Archana Singh, Susheel Sharma, Anil Dahuja and Veda Krishnan.,	In: International Conference on Advances in agriculture and Food system towards sustainable developmental goals, University of Agricultural Sciences, Bangalore.	Abstract	Shiitake (<i>Lentinula edodes</i>) mushrooms: An unexplored source of functional polysaccharides with anti-diabetic potential.	22 August 2022	
Debarati Mondal, Archana Singh, Shelly Praveen and Veda Krishnan	In: International Conference on Advances in agriculture and Food system towards sustainable developmental goals, University of Agricultural	Abstract	Food matrix interactions, micro structure and molecular configuration of starch contributes to 'Low glycemic nature of pearl millet'	22 August 2022,	

	Sciences, Bangalore.				
Ranjeet R. Kumar, Suneha Goswami, Vinutha T., Anjali Ranjan, Abhishek Chitranshi, Veda Krishnan, Sumer Pal Singh, Shelly Praveen, Aruna Tyagi.	National symposium on Emerging Innovations in Plant Molecules for Achieving Food and Nutritional Security (EIPMAFNS-2022)	Abstract Pg.193	Pearl omics approaches for characterizing the fascinating dynamics of lipase-the real culprit of rancidity.	September 22-23, 2022	
Sweta Kumari, Om Prakash Gupta, Sandeep Kumar, Minnu Sasi, Arpitha S R, D Amirtham, Chandra Bhushan Mishra, Vinutha Thimmegowda, Veda Krishnan, Archana Sachdev, Rajeev Ranjan Kumar, Shelly Praveen, Anil Dahuja	Published at 2nd edition of chemistry world conference organized by Magnus group	Abstract	A novel continuous enzyme coupled colorimetric assay for phospholipase A2 and its application in the determination of catalytic activity of oil body-associated oleosin protein	June 13-14, 2022	
Veda Krishnan	Programme for SC/ST students of University of Gwalior, India	Oral	Carriers in Biochemistry	10 th March., 2021	
Debarati Mondal, Archana Singh, Shilpi Aggarwal, Debarup Das, Shelly Praveen, Veda Krishnan.	International conference on 'Recent Advances in Applied Sciences, Technology & Health (RASTH) held on Chennai, India	Poster	Microstructure, matrix composition and interactions share insights into ultimate glycemic potential of pearl millet.	3-5 th march, 2021	

Debarati Mondal, Veda Krishnan , Haritha Bollinedi, Sudhir Srivastava, Ramesh S. V, Latha Madhavan, Bejoy Thomas, Anju T. R, Archana Singh, A. K. Singh, Shelly Praveen. Poster presentation in held on	National Conference for Post Graduate Students (NCPGS-2021) on “Multidimensional approaches for sustaining food and nutritional security”	Poster	Cooking fats and time of addition-critical factors for controlling inherent glycaemic potential of differentially pigmented rice varieties.	4th -5th February, 2021.	
Debarati Mondal, Veda Krishnan , Haritha Bollinedi, Sudhir Srivastava, Ramesh S. V, Latha Madhavan, Bejoy Thomas, Anju T. R, Archana Singh, A. K. Singh, Shelly Praveen.	International Virtual Conference on “Advances in agriculture & food sciences to face the challenges to environment and biosecurity”	Poster	Cooking fats and time of addition-critical factors for controlling inherent glycaemic potential of differentially pigmented rice varieties.	16-20th January, 2021.	
Veda Krishnan	International women’s day celebration at Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu	Oral	Women in Leadership: Achieving an Equal Future in a Covid-19 World	08 th Mar, 2021	Guest speaker
Veda Krishnan	Talk Co-organized by Vigyan	Talk	Functional foods: Food matrix, composition,	11th Aug, 2020	Invited talk

	Prasar and G.N Ramachandra n Science Club by MACFAST, Kerala, India		interactions and bioavailability		
Veda Krishnan	Theme 4 Functional Foods, Bioactive Compounds and Phytochemicals for Better Nutrition.	Talk	Functional Food: Role of Composition, Matrix Interaction and Bioavailability	Dec9-11 th ., 2020	Delivered talk and also assisted as judge for flash talk
Veda Krishnan	Webinar on 'Nutrition, Immunity & COVID-19' organised by ICAR-Indian Agricultural Research Institute and Society for Plant Biochemistry and Biotechnology	Talk	Nutrition, Immunity & COVID-19'	30th September, 2020.	Convenor
Veda Krishnan	Participated in panel discussion by Plantae (American Society of Plant Biologist)	Panel discussion	what makes a paper really pioneering	08 th May, 2020	Panelist
Veda Krishnan, Debarati Mondal, Haritha Bollinedi, Sudhir Srivastava, Ramesh S. V, Latha Madhavan, Bejoy Thomas, Anju T. R, Archana Singh,	National Virtual Conference on Current trends and challenges in plant biochemistry and biotechnology	Poster	Cooking fats and their time of addition tailors the inherent glycaemic potential of differentially pigmented rice varieties: A comprehensive, structural and	20 th -21 st Nov, 2020	

A. K. Singh, Shelly Praveen.			functional study.		
Veda Krishnan	National Virtual Conference on 'Current Trends and Challenges in Plant Biochemistry and Biotechnology	Oral	Nutraceutical starch – An interplay of food matrix components	20 th -21 st Nov, 2020	Co-convenor and Invited Oral talk
Veda Krishnan	Genomics for food, health and nutrition	Attended	-	May 14 th , 2020	-
Veda Krishnan	Attended food structure and functionality symposium	Attended	Starch microstructure and its role in glycaemic response	oct 20, 2020	
Veda Krishnan, Monika Awana, Mahesh Kumar Samota, Sunil Indrajit Warwate, Ankur Kulshreshtha, Mrinmoy Ray, Haritha Bollinedi, Ashok Kumar Singh, Shelly Praveen*, Archana Singh*	National Conference on Integrative Plant Biochemistry and Biotechnology (NCIPBB) at IIRR, Hyderabad, India	Oral	Role of pullulanase: From inception to formation of inherent resistant starch in rice (<i>Oryza sativa</i> . L)	8 th - 9 th Nov, 2019	Best oral award
Ashish Marathe, Smrutirekha Sahu, Nabaneeta Basak, Vanita Pandey, Veda Krishnan, Monica Jolly and Archana Sachdev	National Conference on Integrative Plant Biochemistry and Biotechnology held at ICAR-IIRR, Hyderabad, India	Oral	Perturbing the phytic acid dynamics through RNAi triggered seed specific silencing of ITPK2 for low phytate soybean- a step towards nutritional security	8 th and 9 th Nov 2019	Young Investigator Award for excellence in Plant Biology

Shelly Praveen, R.R. Kumar, Vinutha, T., Veda Krishnan and Archana Singh	National Conference on Integrative Plant Biochemistry and Biotechnology (NCIPBB), at ICAR-IIRR, Hyderabad, India	Oral	Patterns and Rhythms of Biochemical Changes in living organisms: an understanding for management 8th-9th November 2019 in ICAR-IIRR, Hyderabad, India.	8 th and 9 th Nov 2019	
Thakare S, Bansal N, Vanchinathan S, Prashat RG, Krishnan V , Sachdev A and Praveen S, Vinutha T	National conference on integrative plant biochemistry and Biotechnology	Poster	Validation of DET1-gRNAs through transient agroinfiltration approach and analysis of CRISPR/Cas9 mediated mutagenesis in soybean plants	8-9 th Nov, 2019	
Urvi Mehrotra, Ashish Marathe, Monica Jolly, Anil Dahuja, Veda Krishnan , Shelly Praveen, And Archana Sachdev	Plant Biology Research: The Need and Way Forward For Food And Nutrition Security" symposium organized by the Division of Biochemistry And Plant Physiology	Poster	Harnessing CRISPR/CAS9 for targeting inositol 1,4,5-tris-phosphate kinase (IPK2) gene for low phytate soybean	26 th Nov, 2017	Best Poster
Ashish Marathe, Rakesh Kumar Prajapat, Veda Krishnan, Vinutha T, Anil Dahuja, Monica Jolly, Archana Sachdev.	Hargobind Khorana Memorial Symposium on Gene, Genome and Membrane Biology" - HGKCODON 2017	Poster	Exploring the role of Inositol 1, 3, 4-trisphosphate 5/6 kinase-2 (GmITPK2) as a dehydration and salinity stress regulator in Glycine max (L.) Merr. through heterologous expression in <i>E.coli</i>	2017	Best Poster

Ashish Marathe, Joshna Jose, Veda Krishnan, Vinutha T, Anil Dahuja, Monica Jolly, Archana Sachdev.	Foundation day celebrations", Division of Biochemistry, 2017	Poster	Exploring the role of Inositol 1, 3, 4-trisphosphate 5/6 kinase-2 (GmITPK2) as a dehydration and salinity stress regulator in Glycine max (L.).	14 th Nov, 2017	Best Poster
Veda Krishnan	Golden Jubilee Symposium-2016: Plant Biology Research: The need and way forward for food and nutritional security at IARI	Panelist	Participant	Nov 26th, 2016	Panelist
Veda Krishnan	International Seminar on Biosafety and Regulatory Affairs on GMOs and GE plants organized by Amity University, Noida.	Oral	Enhancement of alpha tocopherol content in soybean genotypes by modulating the tocopherol gene(s) expression.	9 th Sept, 2016	
Urvi Mehrotra, Ashish Marathe, Monica Jolly, Anil Dahuja, Veda Krishnan , Shelly Praveen, And Archana Sachdev	Symposium on "Genomics based Next Generation Crop Improvement Approaches" held at Division of Genetics, ICAR-IARI, New Delhi	Poster	"Harnessing CRISPR/Cas9 for targeting Inositol-1,4,5- tris phosphate kinase (IPK2) for developing low phytate soybean"	11 th -12 th Nov 2016	
Urvi Mehrotra, Ashish Marathe, Vinutha T, Monica Jolly,	National Conference on Plant Physiology on	Poster	Exploring CRISPR/Cas9 for targeting Inositol 1,4,5-tris-Phospha	8 th -10 th Dec, 2016	

Anil Dahuja, Veda Krishnan , Shelly Praveen and Archana Sachdev	"Challenges in Crop Physiology Research: From Molecular to Whole Plant" organized by Department of Crop Physiology, University of Agricultural Sciences, GKVK, Bengaluru .		te Kinase (IPK2) gene for low phytate soybean		
Veda Krishnan , S K Lal, Monica Jolly, Anil Dahuja, Sweta Kumari and Archana Sachdev,	Symposium "Plant Biology Research: The Need And Way Forward For Food And Nutrition Security" organized by the Division of Biochemistry and Plant Physiology	Poster	Anthocyanin fingerprinting and molecular characterization of pathway genes- a step ahead for developing high yielding cyaniding-3-O-glu coside (Cy3G) rich soybean	Nov 26 th , 2015	
Vinutha T, N. Bansal, G.R. Prashat, V. Krishnan , S. Kumari, A. Dahuja, S.K. Lal and A. Sachdev	Symposium "Plant Biology Research: The Need And Way Forward For Food And Nutrition Security" organized by the Division of Biochemistry and Plant Physiology	Poster	Molecular cloning and characterization of gamma tocopherol methyl transferase promoter from contrasting (high-low alpha tocopherol) genotypes of soybean in symposium	Nov 26 th , 2015	
Veda Krishnan	National science day celebration	Key note address	Metabolic engineering for food security	Feb 28 th , 2015	Key note address

	symposium at MACFAST, School of Biosciences, Thiruvalla, Kerala				
Veda Krishnan	National science day workshop organized by Kerala State Council for Science and Technology	Invited oral talk	How to go to unknown; revealing the mysteries of research	March 2 nd , 2015	Oral talk to motivate students to pursue research
Nabaneeta Basak, Veda Krishnan , Vanita Pandey, Mansi Punjabi, Alkesh Hada, Ashish Marathe, Monica Jolly and Archana Sachdev	National symposium on, "Germ plasm to genes: harnessing biotechnology for food security and health"	Poster	<i>In silico</i> functional analysis and molecular modelling of Inositol pentakisphosphate 2 kinase (IPK1), a potential low phytate trait gene from <i>Glycine max</i> "	Aug 9 th -11 th , 2015	
Vanita Pandey, Ashish Marathe, Veda Krishnan , Nabaneeta Basak, Mansi Punjabi, Alkesh Hada, Monica Jolly, S.K.Lal and Archana Sachdev.	National symposium on, "Germplasm to genes: harnessing biotechnology for food security and health"	Oral	Modified HPLC method for seed phytate analysis and accumulation profiles in Indian soybean genotype	Aug 9 th -11 th , 2015	
Ashish Marathe, Veda Krishnan , Alkesh Hada, Nabaneeta Basak, Vanita Pandey, Mansi Punjabi, Monica Jolly and Archana Sachdev. at	South Asian biotechnology conference at South Asian University, New Delhi, India.	Poster	Molecular and <i>In silico</i> characterization of Gmitpk2 – A promising candidate towards 'Low phytate soybean'	Feb 12-14 th , 2015	

Alkesh Hada, Veda Krishnan , Ashish Marathe, Mansi Punjabi, Amit K Gupta, Nabaneeta Basak, Vanita Pandey, Monica Jolly, Andy Ganapathi and Archana Sachdev	South Asian biotechnology conference at South Asian University, New Delhi, India	Poster	Stable & efficient half seed transformation method of <i>Glycine max</i> (L) Cv. DS-9712 by optimizing sonication, vacuum infiltration and composition of culture medium	Feb 12-14 th , 2 015	
Vinutha T, N. Bansal, G.R. Prashat, V. Krishnan , S. Kumari, A. Dahuja, S.K. Lal and A. Sachdev	International symposium on "Biodiversity, Agriculture, Environment and Forestry", Asso ciation for the Advancement of Biodiversity Science, Ooty, Tamil Nadu, India		Biochemical and molecular characterization of tocopherol pathway and its regulatory genes to elucidate the role of tocopherols in the improvement of flavor and oil quality of soybean.	Dec 11 th to 12 th 2015	
Veda Krishnan	IARI, New Delhi, India	An invited oral lecture	Transgenic crops boon or bane" – at Hands on training on RNAi: Concepts and its application in plant science on	8 th March, 2014	
Veda Krishnan , Ravisha Rawal, Archana Singh, Anil Dahuja, Vinutha T, Bhupinder Singh, Archana Sachdev, R.D Rai	International conference on radiation biology-Fronti ers in Radiobiology: Immunomodul ation, countermeasu res & therapeutics.	Oral	Effect of low dose of gamma irradiation in improving the phytochemical and nutraceutical value of Indian soybean varieties	Nov 11-13 th , 2014	

	NAAS complex, New Delhi, India.				
Veda Krishnan , Priyanka Jain, Vinutha T, Alkesh Hada, Manickavasagam M, Ganapati A, R D Rai and Archana Sachdev	Bio world - Protein structure & Function conference at IIT, New Delhi, India	Poster	Molecular modelling and <i>In silico</i> characterization of <i>Glycine max</i> inositol (1,3,4) tris5/6 kinase isoforms (<i>Gmitpk1-4</i>) – A potential candidate gene for developing Low phytate transgenics	Dec 12-14 th , 2014	
Vinutha T, Navita Bansal, Rama Prashat G, Veda Krishnan, Sweta Kumari, Anil Dahuja, Archana Sachdev and R.D Rai.	Bio world - Protein structure & Function conference at IIT, New Delhi, India	Poster	Three-dimensional structure prediction and <i>In silico</i> functional analysis of gamma tocopherol methyl transferase from <i>Glycine max</i>	Dec 12-14 th , 2014	
Alkesh Hada, Veda Krishnan , Sweta Kumari, Mansi Punjabi, Monica Jolly & Archana Sachdev	International conference SOYCON- 2014 at Directorate of Soybean Research, Indore, India.	Poster	Optimization of glufosinate concentration for rapid and efficient selection in <i>Agrobacterium</i> -mediated transformation of soybean	Feb 22-24 th , 2014	
AlkeshHada, Veda Krishnan , Nabneeta Basak, Vanita Pandey, Sweta Kumari, Mansi Punjabi, Monica Jolly & Archana Sachdev	National conference Science of Omics for Agricultural productivity: Future Perspectives at G.B. Pant University of Agriculture & Technology,	Poster	Improvement of Cotyledonary-nodule method for efficient <i>Agrobacterium</i> -mediated Soybean transformation	Mar 4-6 th , 2014	

	Pantnagar, India				
Alkesh Hada, Amit Kumar Gupta, Mansi Punjabi, Veda Krishnan , Monica Jolly, Andy Ganapathi and Archana Sachdev.	International Congress on “Agriculture, Food Engineering and Environmental Sciences- Sustainable Approaches” (AFEESA- 2014) at Jawaharlal Nehru University, New Delhi, India.	Oral	Assessment of conditions affecting Agrobacterium -mediated soybean transformation using glufosinate selection in the cotyledonary-nod e method”	Mar 29 th – 30 th 2014	
Varun Kumar, Amit Kumar Gupta, Alkesh Hada, Mansi Punjabi, Veda Krishnan , Monica Jolly and Archana Sachdev.	International Congress on “Agriculture, Food Engineering and Environmental Sciences- Sustainable Approaches” (AFEESA- 2014), Jawaharlal Nehru University, New Delhi, India	Poster	Effect of Reduced Phosphorus Availability on in Phytic Acid Accumulation during of Soybean Seed Development	Mar 29 th – 30 th 2014	
Vinutha T, Navita Bansal, Rama Prashat G, Veda Krishnan , Sunita Upadhaya, Anil Dahuja, I.M.Santha and R.D.Rai	International Congress on “Agriculture, Food Engineering and Environmental Sciences- Sustainable Approaches” (AFEESA-	Oral	Lipid peroxidation and related parameters strongly influence the storability of soybean (<i>Glycine max</i>) seeds”.	Mar 29 th – 30 th 2014	

	2014) at Jawaharlal Nehru University, New Delhi, India.				
Mageshwaran V, Kathe A.A, Charlene D'Souza, Shaikh A, Nishant D. Kambli, Meetali G, Veda Krishnan.	First International and third national conference Biotechnology, Bioinformatics and Bioengineering, at Tirupati, India.	Oral	Biodegradation of gossypol in mineral medium by fungal cultures	June 2013	
AlkeshHada Sweta Kumari, Veda Krishnan , Monica Jolly & Archana Sachdev	International conference on role of plant biochemistry and biotechnology in food and nutritional security, Shri Venkateshwar a University, Tirupati, India	Oral	Bioavailability of essential minerals and phytase activity during soaking and seed germination in Soybean (<i>Glycine max.</i>)”	Dec11-14 , 2013,	
Veda Krishnan , Archana Sachdev Vinutha.T, Anil Dahuja and R.D. Rai,	International conference on plant biotechnology, Molecular medicine and human health at South Delhi Campus, Delhi University, New Delhi, India.	Poster	Gamma irradiation: an efficient tool to improve the nutraceutical properties in different soybean genotypes	Oct 18-20 th , 2013	
Vinutha.T, Navitha Bansal, Kalpana Tiwari, Chirag Maheshwari,	International conference on plant biotechnology, Molecular	Poster	Molecular and biochemical basis of alpha-tocopherol accumulation in	Oct 18-20 th , 2013	

Veda Krishnan , Anil Dahuja and R.D. Rai	medicine and human health at South Delhi Campus, Delhi University, New Delhi, India		soybean germ plasm		
Mageshwaran Ve llaisamy, A.A Kathe, A. Shaikh, Meetali G Chinnkar, A. Arputharaj, Veda Krishnan , Floyd Inmaniii and Len Holmes.	North Carolina American Society of Microbiology, on, held at Greensville, USA	Poster	Unraveling the mechanism of biodegradation of gossypol by fungal cultures	Oct 2013	
L.Makhija, V.Krishnan , Samarpana, B.Ghosh, A.Agrawal.	Conducted by Ranbaxy	Poster	DMSO-Novel Implications in Asthma	Feb, 2012	First Prize

MEMBER OF COMMITTEES

S.No	Name of the Committee	Chairperson/ Member	Year
13.	Industry meet (crops) for CRP projects	Member Secretary	2025
12.	NEP 2020 Sarthi	Member Secretary	2025
11.	Committee for formulation of guidelines for hostel allotment	Member Secretary	2023
10.	DBRC	Member Secretary	2023
9.	Working group for IARI Global University	Member	2023
8.	Board of Studies, Biochemistry (BoS)	Member Secretary	2022

7.	Comprehensive committee member for MSc and PhD exams	Member	2022
6.	Student-intern selection committee	JDR Nominee	2022
5.	Academic events committee	Member	2023
4.	Common facilities committee, Division of Biochemistry, ICAR-IARI	Member	2021
3.	Cultural programme and invocation committee for 58th convocation, IARI	Member	2020
2.	National Academy of Biological Sciences (Since 2019), Society for Plant Biochemistry and Biotechnology L-711, Life Member Indian science congress association (Since 29th May, 2018) – L35686, Life member nutrition society of India (since 2018), Indian Society of Agricultural Biochemists, Society for Plant Research, Emerging Science, Faculty Club, IARI	Life Member	
1.	Delhi chapter of Indian Society of Agricultural Biochemists	Treasurer	LM-598

EDITOR/REVIEWER

- Editor-in chief, GYA Research perspectives
- Topic Editor in *Frontiers in Nutrition* - Millets: Superfood of the Century – Challenges and Opportunities (2023)
- Guest editor – Special Issue in Foods (2023)
- Reviewed manuscripts in reputed international and national journals like *Frontiers in Nutrition*, *International Journal of Biological Macromolecules*, *Journal of Food Measurement and Characterization* & *Future Foods* etc.
- Editorial board member & Section editor for *Probe-Food Science Research* (ISSN 2661-3956)
- *Reviewed papers for Nature scientific reports, Food Chemistry, Carbohydrate Polymers, Food and Function, International Journal of Biological Macromolecules, Journal of Plant Biochemistry, Agricultural Research, Food Analytical Methods and Biotechnology, Bio info publications, Indian journal of agricultural sciences etc*

SPECIAL ASSIGNMENT OUTSIDE THE ORGANIZATION

1. Selected member from Biochemistry for Technology Vision 2047 meeting by Technology Information, Forecasting and Assessment Council (TIFAC) on 31st August 2023 at Division of Plant Physiology, ICAR-IARI

2. Organized National Science Day 2023, with guest of honours Prof. Ashutosh Sharma, President, INSA and Padmashri Prof Anil Rajvanshi at INSA, New Delhi on Feb28th, 2023
3. Co-Chaired the session of oral presentation of young scientists on Dec 10th at the International workshop on “Key Enabling Technologies for Sustainable Agri-Food Chain” held at NIT, Rourkela
4. Moderated the panel discussion on Biochemistry: Past, Present and Future on 15th Nov, 2022 organized by the Division of Biochemistry, ICAR-IARI on Lecture-cum interaction.
5. Programme committee member for organizing International Conference on Biochemical and Biotechnological Approaches for Crop Improvement (IBBACI) organized during 30th Oct-1st Nov, 2023.
6. Organizing team member of PRAYOJAN [(Post-PhD: Research, Academia and Industry Opportunities, science Journalism, grAnt writing and Networking) 22nd -23rd April 2023] and moderated session on Experience sharing of fellowships
7. INYAS nominated for the prestigious Global Young Academy (GYA) membership 2022 and was shortlisted for final round.
8. Conducted building science enthusiasts with INSA-INYAS during 26th-28th Nov, 2023 where school students visited IITD, IARI and other state of art research facilities
9. Attended Webinar European Research Council on 14th July, 2022
10. Reviewer of DBT-Welcome Trust grant on ‘Millets and Health’
11. Treasurer of Delhi-Chapter, Society for Agricultural Biochemists
12. Resource person for USIEF – Fulbrighter events (Privileges and Obligations, Experience sharing etc)
13. Initiatives taken to sign Material Transfer Agreement (MTA) between Agriculture and AgriFood – Canada (AAFC) & ICAR-IARI for starch digestibility analysis using dynamic gastric model.
14. Submitted comments on DBT draft on genome edited crops - ibkp2019@dbt.nic.in
15. Member selection committee for recruitment (JDR nominee) for SRF in the DBT funded project “Skill building in nutrition sensitive agriculture for empowerment of rural women” on 14th October, 2019 at Division of Extension, IARI, New Delhi.
16. Member selection committee for recruitment (JDR nominee) for JRF for SERB-ECR project on 25th October, 2019 at ICAR-NIPBT, New Delhi, India.
17. Successfully completed science journalism course (one year) by Indian Science Communication Society- ISCOS TCSJ/25/34
18. Joint director nominee CRP-Biofortification in selected crops for nutritional security – Rice, August 8th, 2020
19. Member of ICAR-IARI post graduate school, Biochemistry Comprehensive examination committee – 2015 & 2022
20. As a 'Question paper setter' for conducting qualifying examination of BSc Agriculture, Tamil Nadu Agricultural University
21. **Thesis evaluator** – MDU, Rohtak Doctoral thesis evaluated “Studies on the potentiality of some medicinal plants against multiple resistant microbes, hyperglycemic & hyperlipidemic activities” Department of Medicinal Plant Biotechnology SIMPRA, BDU, Trichy ; Master’s thesis evaluated “Evaluation of fodder quality of grasses and legumes at different growth stages (MPKV, Rahuri)

Contact List of Referees

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Dr. Anurag Agrawal Dean, BioSciences and Health Research, Trivedi School of Biosciences, Ashoka University Plot No. 2, Rajiv Gandhi Education City, National Capital Region P.O. Rai, Sonapat Haryana-131029 (India) Email: anurag.agrawal@ashoka.edu.in Cel: +91- 9818451946	Dr. Shelly Praveen Ex-Head and Principal Scientist Division of Biochemistry ICAR-Indian Agricultural Research Institute (IARI) Pusa, New Delhi -110012, India Email: shellypraveen@hotmail.com Cel: +91-9868033132