

## RESUME

### Dr. ASHA MARTIN

Principal Scientist

Department of Food Safety & Analytical Quality Control

CSIR-Central Food Technological Research Institute,

Mysore - 570020

Telephone: 91-0821-2514972 (o); 9449029530

E-mail: ashamartin@cftri.res.in



### SUMMARY

- Excellent academic record with core research expertise in the areas of Biochemistry, Biotechnology, Molecular Biology and Food safety.
- Head of Food Safety & Analytical Quality Control Laboratory, CFTRI Mysore from 2014-2017.
- Director of FSSAI notified Referral Food Laboratory, CFTRI Mysore from 2014-2017
- Quality Manager for the Analytical services provided by CFTRI from 2014-2017. Well versed with ISO 17025 management systems.
- Chairman of FAD-28 “Test methods for food products” sectional committee of the Food and Agriculture Division of Bureau of Indian Standards (Aug 2014-Dec 2017).
- Expert Member of the project review & steering group for Ministry of Electronics and Information Technology.
- Expert Member of Technology and Innovation forecasting committee (TIFAC), DST.
- Principal Member of the Technical committee on “Food Biotechnology” sectional committee (FAD-23)” of the Food and Agriculture Division of Bureau of Indian Standards (BIS).
- Member of the Scientific panel on Sweets, Confectionery, Sugar and Honey, FSSAI
- Member of Food Analyst Exam Board, FSSAI, 2016-2017.
- Extensively contributed in knowledge dissemination and capacity building in the areas of Biotechnology, food safety and quality. Coordinator for two international and nine national training programs on food safety.
- Coordinator for MSc Food Technology Subject - Food Quality, Safety and Analysis. Faculty for AcSIR doctoral students and for the subject Molecular Biology and Genetic engineering for MSc Food Technology.
- Member of the Board of studies for Food Sciences and Nutrition, University of Mysore.
- Member of the School board of Life Sciences, Pondicherry University
- Member of the C.F.T.R.I management council for 2007-2009.

## **EDUCATION**

Ph.D. Biochemistry, Nagpur University, Nagpur, India (1998)

M.Sc. Biochemistry, Nagpur University, Nagpur, India (1992)

B.Sc. Biochemistry, Nagpur University, Nagpur, India (1990)

## **Professional experience:**

1993-1995 Junior Research Fellow, Department of Food Technology, Laxminarayan Institute of Technology, Nagpur University, Nagpur.

1995-1997 Junior Research Fellow, Department of Food Technology, Laxminarayan Institute of Technology, Nagpur University, Nagpur.

1997-1998 Senior Research Fellow, Department of Food Technology, Laxminarayan Institute of Technology, Nagpur University, Nagpur.

2002-2005 Junior Scientist B, FS & AQCL, CFTRI, Mysore

2005-2009 Scientist C, FS & AQCL, CFTRI, Mysore.

2009-2013 Senior Scientist E1, FS & AQCL, CFTRI, Mysore.

2013 till date Principal Scientist EII, FS & AQCL, CFTRI, Mysore.

2014-2017 Head of Food Safety & Analytical Quality Control laboratory

2014-2017 Director of FSSAI notified Referral food Laboratory, CFTRI Mysore

## **RESEARCH AREAS**

- Presently involved in delineating the molecular mechanisms behind the health benefits associated with dietary molecules using animal /cell models with a focus on Pro protein convertase subtilisin/kexin type 9 (PCSK9), an important post- transcriptional regulator and SIRT 1 (Silent information regulator), a promising therapeutic target for the treatment of several metabolic disorders. The overall goal is to develop safe diet based strategy centered on nutraceuticals for prevention of chronic diseases.
- Cloning, functional expression of wax synthases for production of tailored wax esters for potential use in food/pharma/ cosmetic industries.
- Functional and nutritional characterization of under-utilized edible fruits.
- Elucidation of the health benefits of under exploited medicinal plants
- Structural characterization of proteins
- Genomic and proteomic approaches for detection of GMOs and food allergens.

## **Awards and recognition**

- i) Chief guest for the National Science day celebration held on 28-02-2020 at Regional Institute of Education (RIE), Mysore and delivered the key note address .
- ii) Chief guest for the 12th Foundation Day celebration of ICAR-National Research Centre on Meat, Hyderabad held on 22nd February, 2019 and delivered the key note address .

- iii) CFTRI Foundation day individual award (2019) for Maximum ECF generated in the institute for the period for the period 16-17, 17-18 and 18-19.
- iv) Col. O.P Kapoor 2016 award (Citation and Rs. 15,000 cash award) for contribution in the field of food Safety by the All India Food Processors Association (AIFPA), New Delhi.
- v) Ranganna Setty Memorial Award for Best MSc Food Tech Investigation thesis (2014) entitled “Detection of gluten contamination in gluten free food products using polymerase chain reaction” carried out at CFTRI under my supervision and guidance.
- vi) CFTRI Foundation Day Award – 2014 for the Best Research paper published in Basic Science Category by staff .
- vii) CSIR-CFTRI open day 2015 for the Best display award- Successfully led the Department of FSAQCL by winning the 1st place in the People’s Choice category.
- viii) Awarded the Junior Research Fellowship in 1995 and Senior Research Fellowship in 1997 for pursuing doctoral study in Biochemistry by the University Grants Commission (UGC), New Delhi.
- ix) Qualified the National Level Exam of General Aptitude Test in Engineering (GATE-94).
- x) Awarded the M.R.F. Student Scholarship for excellence in academic studies for every academic session from 1985 to 1992.
- xi) Awarded the National Merit Certificate by the Govt. of India in 1985 in recognition of the high position secured in the Senior Secondary School Certificate (SSC) examination.

#### Deputations Abroad:

Participated in the global symposium on GMO detection methods and reference materials, organised by AACC International and Crop life international at Minneapolis, Minnesota, U.S.A., 15-Oct- 16-Oct-2015.

#### No. of Ph.D. students guided/mentoring

S.No	Candidate	Title	University	Status
1	Rajashekar Ballari (CSIR-SRF)	Construction of plasmid based reference molecules for biotechnological applications	Mysore University	<b>Awarded</b>
2	Ms. Theresa Shalini (DST-Inspire-SRF)	Cloning, Functional Expression and Characterization of Wax Synthase from <i>Helianthus annuus</i> (Sunflower)	AcSIR	Thesis Submitted
3	Ms. Aisha Siddiq (DST-Inspire SRF)	Identification and evaluation of Food molecules as modulators for PCSK9 for the management of obesity.	AcSIR	In progress

4.	Ms. Arya devi (UGC-SRF)	Molecular insights related to the propensity of dietary molecules to modulate Sirtuins (SIRT1)	AcSIR	In progress
5	Ms. Jessica Majaw (UGC-JRF)	Studies on the nutritional and Functional characterization of underexploited medicinal plants of North East India.	AcSIR	In progress
6	Ms.Divya Priya (UGC-JRF)	Assessment of nutritional and Functional attributes of selected underexplored edible fruits	AcSIR	In progress

**Dissertation thesis supervised:**

S.No	Candidate	Name of the dissertation title	University	Year
1.	Niketha N.	Gluten free foods	MSc. Food Technology Mysore University	November 13
2	Niketha N,	Detection of gluten using molecular techniques	MSc. Food Technology Mysore University	June 2014
3	Prashanth Raj Verma	Molecular studies on the traceability of soy DNA in processed foods.	B Tech Biotechnology Honours Maharishi Markandeshwar University, Haryana	May 2015
4	Vishnu Mohan P	Studies on the molecular traceability of gluten free foods	B Tech Biotechnology Honours Lovely Professional University, Punjab	May 2015
5	Aswathi S L	Use of encapsulated anthocyanins in beverages	MSc. Food Technology Mysore University	December 2015
6	Revathi	Evaluation of beverage mix developed from nutri cereals for nutritional enrichment	Minor project, (Ph.D). Tamil Nadu Agricultural University	March 2016
7	Aswathi S L	Controlled release of anthocyanins in water based systems	MSc. Food Technology Mysore University	June 2016
8	Aswathi E.V.	Plasmid based reference material for the quantitative analysis of Bt-Brinjal	MSc in Molecular Biology, Kannur University, Kerala	July 2016
9	Drishya P	Investigation of free amino acids in tea samples.	MSc in Food Technology and Quality Assurance, Mahatma Gandhi University, Kerala	April, 2018

10	Henry J	Determination of taurine in energy drinks and nutritional supplements.	MSc in Food Technology and Quality Assurance, Mahatma Gandhi University, Kerala	April, 2018
11	Dhivya R	Taurine: an essential nutrient for human health.	MSc in Food Technology, AcSIR	December 2018
12	Swati Singh	Estimation of free glutamate in instant noodles	MSc in Food Technology Allahabad University	May 2019
13	Dhivya R	Nutritional characterization of commercial infant foods in India.	MSc in Food Technology, AcSIR	June 2019
14	Ashwini T.S	Creatine: A Nutritional, Ergogenic aid for Health and Fitness	MSc in Food Technology, AcSIR	November 2019
15	Ashwini T.S.	Quantitative Analysis of Creatine in Sports Supplements	MSc in Food Technology, AcSIR	2020
16	Bhakthi Jadhav	Molecular traceability of <i>Helianthus annuus</i>	BSc in Agricultural Biotechnology, Mahatma Phule Agricultural University, Rahuri	May 2020
17	Nivedhitha	Molecular studies on traceability of <i>Brassica oleracea var. botrytis</i> (cauliflower)	B.Tech Genetics Engineering, SRM Institute of Science and Technology, Chennai	May 2020

**Key note address and Invited lectures delivered:**

1. Delivered the chief guest address on “Women in Science” and delivered a key note lecture on “Recombinant Technology and genetically modified crops” at Regional Institute of Education (RIE), Mysore on 28-02-2020 as part of the National science day celebrations.
2. Invited lecture on “Fortified foods: food safety compliance” delivered on February 7, 2020 at the Consultation meet on National Nutrition programmes under umbrella ICDS at National Institute of Public Cooperation and Child Development, Ministry of women and child development, Bangalore.
3. Invited lecture on “Genetically modified foods: Challenges and Opportunities” as part of the University of Mysore, Department of Food Science and Nutrition special lecture series for research scholars and PG students on 11th December, 2019.
4. Invited Lecture on “ Overview of good food laboratory practices” delivered at FSSAI workshop on GFLP at NRC-meat, Hyderabad, June 25, 2019.

5. Key note address on “Ensuring food quality and safety” at the 12th Foundation Day" of ICAR-National Research Centre on Meat, Hyderabad on 22nd February, 2019.
6. Invited Lecture on “Testing of quality and safety parameters in food samples as per FSSAI including reporting the results” delivered at FSSAI workshop on GFLP at IIHR, Bangalore, December 26, 2018.
7. Invited lecture on “Omic approaches in food analysis” delivered on 26 th September 2018 during the course organised on Foodomics in food analysis: Challenges and perspectives” for DRDO scientific staff and Army supply corps officers at DRDO-DFRL Mysore.
8. Invited Lecture on “ Overview of good food laboratory practices” delivered at FSSAI workshop on GFLP at IIHR, Bangalore,December 26, 2018.
9. Invited lecture on "Emerging foods and their safety concerns" at G N Ramachandran Science Club MACFAST, Thiruvalla, Kerala delivered on 31 st May 2018.
10. Workshop on “Safe Food for the cleanest city in India” for street vendors held on 17<sup>th</sup> March 2016 at CSIR-CFTRI, Mysore.
11. CEO’s meet on Make in India in Food Processing- Initiatives by CSIR-CFTRI, on 4<sup>th</sup> Jan 2016 at CSIR-CFTRI, Mysore.
12. Invited talk “Safety concerns of emerging foods” on January 16, 2016 for the students from the University of Wisconsin, USA at CSIR-CFTRI, Mysore.
13. Consultative meeting on guidelines to enhance Safety and Quality of street foods organized jointly by WHO-India, Mysore city corporation and Foundation for community Support and Development in Mysore on 17-18 Dec 2015.
14. Invited talk on “Food safety initiatives at CSIR-CFTRI: Challenges and way forward”, September 10th, 2015, at Indo - Bangladesh Workshop on Food Safety organized jointly by CSIR and BCSIR, Bangladesh at CSIR-CFTRI, Mysore.
15. Invited talk on “Food safety: A shared responsibility”, on May 29th, 2015, at the MSME meet 2015 Workshop on “Value added Agriculture and Food processing” at CSIR-CFTRI, Mysore.
16. Invited talk on “Food safety: From farm to plate, make food safe”, on May 5th, 2015, at the State level Community medicine CME 15 on Food Safety at the Adichunchanagari Institute of Medical Sciences, Mandya.
17. Invited talk “Genetically Modified Foods: An Overview” on January 23, 2015, at the symposium on Recent Trends in Food Science & Technology, organized by TATA Chemicals Innovation Centre, Pune.

## **TRAINING & WORKSHOPS**

1. Participated in two days training program on IPR issues organised by HRDC-CSIR at CFTRI Mysore From 21<sup>st</sup> to 22nd July 2017.

2. Participated in four days training program on “Laboratory Management System & internal audit” as per IS/ISO/IEC 17025 : 2005 & NABL requirements from 26<sup>th</sup> to 29<sup>th</sup> April 2016 at STQC, Govt of India, ETDC-training centre Bangalore.
3. Participated in two days training on Biosafety and Biosecurity organised by Ministry of External Affairs and DRDO, Gwalior on 19-20<sup>th</sup> May 2016.
4. Participated in Training on “Detection of Living Modified Organisms/Genetically Modified Organisms” Organized By MoEFCC under the UNEP-GEF Supported Phase II Capacity Building Project on Biosafety and Conducted By Intertek-ScanBi Diagnostics, Sweden at Punjab Biotechnology Incubator, Mohali from October 26-31, 2015.
5. Participated in the global symposium on GMO detection methods and reference materials, organised by AACC International and Crop life international at Minneapolis, Minnesota U.S.A., 15-Oct- 16-Oct-2015.
6. Participated in a workshop organized by FSSAI and CSIR- CFTRI on “Analytical issues in imported food samples by food testing laboratories” held at CSIR- CFTRI Mysore from 23-24<sup>th</sup> April 2012.
7. Participated in a training –workshop on “Metrology in Chemistry” held at Mysore from 6-10<sup>th</sup> December 2010. The workshop was jointly organized by NPL-CSIR, PTB, Germany and CFTRI within the framework of the Indo-German Technical cooperation. The training was specifically on uncertainty measurement.
8. Participated in the two-day Training programme on Laboratory Accreditation under ISO 17025:1999 Standard, organized by HRDC, CSIR, at India Habitat Centre, New Delhi on 4<sup>th</sup> and 5<sup>th</sup> August, 2005
9. Participated in the one-day Seminar on Real Time PCR applications organized by Applied Biosystems at Bangalore on 6<sup>th</sup> November 2005
10. Participated in a training cum workshop on “Plant Genomics: DNA sequencing and data analyses” organized by DBT and National Center for Plant Genome Research at NCPGR, New Delhi from March 27<sup>th</sup> to April 9<sup>th</sup>, 2003.
11. Participated in an Orientation training programme for CSIR Scientists organized by HRDG, CSIR, New Delhi and held at CSIR-SERC, Chennai from 28-07-03 to 01-08-03.
12. Participated in an International workshop and Training program on detection methods for GM plants/foods detection methods for GM plants/Foods organized by ILSI-India, ILSI International Food Biotechnology committee, Department of Biotechnology, GOI, American Association of Cereal Chemists in collaboration with Center for DNA Fingerprinting and Diagnostics (CDFD) from 20-10-03 to 22-10-03 at CDFD, Hyderabad.

#### **Reviewer for Journals/ project proposals**

1. Reviewer for research proposal submitted to DSIR under the Technology development and utilization programme for women.
2. Reviewer for Project proposal submitted for funding to SERB, DST
3. Reviewer for research proposal submitted to CSIR-HRF under the Extra mural research scheme.
4. Reviewer for research proposal submitted to Kerala Science and Technology department.

5. Reviewer for Analytical Bioanalytical Biochemistry, Journal of Food Science and Technology (Springer), Food Chemistry (Elsevier), Journal of Photobiology (Elsevier), Journal Food Composition and analysis (Elsevier) and Indian Journal for Experimental Biology (CSIR).
6. Question Paper setter for Kerala Public Service Commission
7. Paper setter and evaluator for MSc Food Science and Nutrition, PG diploma in Food Safety and Quality Assurance course conducted by University of Mysore.

#### **Membership of National /Institutional Committees**

1. Chairman of FAD-28 “Test methods for food products” sectional committee of the Food and Agriculture Division of Bureau of Indian Standards (Aug 2014-Dec 2017).
2. Member of the Scientific panel on Sweets, confectionery, sweeteners, sugar and Honey (FSSAI).
3. Expert Member of the project review and steering group (PRSG) for Ministry of Electronics and Information Technology.
4. Principal Member of the Technical committee on “Food Biotechnology (FAD-23)” of the Food and Agriculture Division of Bureau of Indian Standards (BIS).
5. Expert Member of Technology and Innovation forecasting committee (TIFAC), DST.
6. Principal Member of the Technical committee on “Composition of Food Hygiene, safety management and other systems sectional committee (FAD-15)” of the Food and Agriculture Division of Bureau of Indian Standards (BIS).
7. Member of Institutional Biosafety committee (IBSC) of CSIR-CFTRI.
8. Convener of the Souvenir committee of the 85<sup>th</sup> Annual meeting of the Society of Biological Chemists (India) on 21-24, 2016.
9. Steering committee member of ISO 9001: 2008
10. Steering committee member of ISO 14000:2004
11. MR for ISO 17025 from 2014-2017
12. Member of the National Food Analyst Examination Board notified by the Gazette of India dated July 29, 2016.
13. Member of the School board of Life Sciences, Pondicherry University.
14. Member of the management council of CSIR-CFTRI (2007-2009).

#### **Publications**

1. Characterization of in silico modeled synthetic protein enriched with branched-chain amino acids expressed in *Pichia pastoris* L.Sunil, Prakruthi Appaiah, Asha Martin, Prasanna Vasu. ***International Journal of Biological Macromolecules***, Volume 168, Year 2021, Pages 518-525.
2. Identification, isolation and heterologous expression of Sunflower wax synthase for the synthesis of tailored wax esters. Theresa Shalini and Asha Martin. ***Journal of Food Biochemistry*** (2020) **Volume 44**,



3. Valorization of By-products Derived from Milled Moth Bean: Evaluation of Chemical Composition, Nutritional Profile and Functional Characteristics. Mohammad Hassan Kamani, Asha Martin & Manchanahally Shivanna Meera. *Waste and Biomass Valorization* (2020) 11:4895–4906
4. Recovery, physicochemical and functional characteristics of proteins from different meat processing wastewater streams. *Environ Sci Pollut Res* (2020). 27:25119–25131. Catherine M.S.B, Bhaskar Narayan, Asha Martin & Tanaji Kudre.
5. Increasing emphasis on food testing for contaminants, pathogens and allergens. **Asha Martin**. Food and Beverage News, Saffron media, June 16, 2016.
6. \*Assessment of DNA degradation induced by thermal and UV radiation processing: Implications for quantification of genetically modified organisms. *Food Chemistry, Volume 141, Issue 3, 1 December 2013, Pages 2130-2136*. Rajashekhar V Ballari and Asha Martin. **\*Won the CFTRI Foundation Day Award (2014) for the Best Research paper published in Basic Science Category by staff.**
7. A calibrator plasmid for quantitative analysis of insect resistant maize (Yieldgard MON 810). *Food Chemistry, Volume 140, Issues 1–2, 1–15 September 2013, Pages 382-389*. Rajashekhar V. Ballari, Asha Martin, Lalitha R. Gowda.
8. Detection and Identification of Genetically Modified EE-1 Brinjal (*Solanum melongena*) by single, multiplex PCR and Real Time PCR. *J Sci Food Agriculture* (2013) 93: 340–347. Rajashekhar V Ballari, Asha Martin and Lalitha R Gowda.
9. A Polymerase Chain Reaction directed to detect wheat glutenin: Implications for gluten free labeling. Jaba Debnath, **Asha Martin** and Lalitha R. Gowda (2009). *Food Research International* 42, 782-787.
10. Effect of traditional Indian household thermal processing operations on the 3-N-oxalyl L-2-3-Diaminopropanoic acid ( $\beta$ -ODAP) in grass pea (*Lathyrus sativus*) as determined by reverse phase high performance liquid chromatography. Rohini M., **Asha Martin** and Lalitha R. Gowda (2009). *Journal of Food Composition and Analysis* 22, 704-708.
11. Detection of genetically modified soya and maize: Impact of heat processing. K.R. Vijayakumar, Asha Martin, Lalitha R. Gowda and V. Prakash, *Food Chemistry*, **Volume** 117, **Year** 2009, **Pages** 514-521
12. A reverse phase high performance liquid chromatography method for analyzing of neurotoxin  $\beta$ -N-oxalyl-L- $\alpha,\beta$ -diaminopropanoic acid in legume seeds. R. Thippeswamy, **Asha Martin** and Lalitha R. Gowda (2007) *Food Chemistry* 101, 1290-1295.
13. Evaluation and validation of commercial lateral flow strip test kits for detection of genetically modified herbicide tolerant soybean and insect resistant maize. Rajshekhkar V. Ballari, **Asha Martin** and Lalitha R.Gowda (2006) In *Biosafety: Issues and Challenges*. pp 162-168. Editors: Desh Deepak Verma and Manoranjan Hota, Ministry of Environment and Forests, Government of India.

14. Determination of theanine in commercial tea by liquid chromatography with fluorescence and diode array ultraviolet detection. R Thippeswamy, Mallikarjun Gouda, Devaratha H. Rao, **Asha Martin** and Lalitha R. Gowda (2006) J. Agric. Food Chemistry, 54(19) 7014-7019.
15. Toxicity evaluation of insecticides to stored grain pest, *Sitophilus oryzae* (Coleoptera; Curculionidae). **Asha Martin** and E.R. Martin Pollution Research, **Volume 22, Year 2002, Pages 465-467.**
16. **Asha John** & P.N. Shastri (1998). Study on Food Macromolecules by differential scanning calorimetry: A Critical Appraisal. J. Fd Sci & Technology. 35:1-14. IF: 2.02.