

Curriculum Vitae

1. Name and designation: Dr. M. Madhava Naidu
Senior Principal Scientist
SFS Department, CSIR-CFTRI,
Mysore-570 020
E-mail: mmnaidu@cftri.res.in

2. Date of Birth: 15-06-1963

3. Academic and Professional career:

M.Sc. 1987 – Botany – First Class
Department of Botany, Gulbarga University, Gulbarga, India

Ph.D. 1993 — Thesis entitled: “Mutation breeding and tissue culture studies in chick pea [*Cicer arietinum* L.]” Department of Botany, Gulbarga University, Gulbarga, India

- 4. Awards:**
- 1) Biotechnology National Associate ship from Department of Biotechnology, Government of India 1993-94
 - 2) Best Scientific and Technical contribution individual award for 2010-11 (CFTRI Annual award)
 - 3) “AMULYA” award by Karnataka State Innovation Council and Department of Industries and Commerce (2012)

5. Research experience:

With the expertise in different facets of research in the field of food science, and experience gained by working in various projects, I have contributed both in terms of quality and quantity without sacrificing relevance and contemporariness.

Current areas of research

- Development of bioactive conserves and nutraceuticals from green coffee, cashew apple and ginger
- Extraction, purification, characterization and stabilization of carotenoids, capsaicinoids from chilli and curcumnoids from turmeric
- Studies on antioxidant activities of bioactive conserves and isolates using *in vitro* methods
- Development of method for faster curing of vanilla
- Development of value added products from vanilla, coffee, chilli, turmeric, ginger, pepper

Transfer of technologies to the industries

- Pepper: white pepper, dehydrated green pepper, pepper in brine,
- Fresh ginger: ginger powder, paste, candy,
- Turmeric: curing and polishing, oleoresin, curcumin
- Chilli: oleoresin, carotenoids,
- Cocoa : Curing of cocoa beans, cocoa mass, cocoa butter & cocoa powder
- Beet root and blue grapes : Natural colors
- Kokum: kokum concentrate
- Cashew apple: flavored candy, beverage dry mix

HRD activities

- Teaching and guidance for M.Sc, Food Science & Technology and AcSIR students
- Guidance to Ph.D students
- Conducting short term training courses on spice processing
- Rural development programmes on spice processing, demonstration and training

Other activities

- Sample analysis by NABL accredited methods
- Calibration and maintenance of analytical instruments
- Inter and Intra-laboratory validation of analytical methods
- Participation in ISO:9001-2000 activities

6. a) Selected peer-reviewed publications

1. Vedashree M. Pankaj Satpathy. Ravi. R ., M. Madhava Naidu (2016). Turmeric Spent Flour : Value addition to breakfast foods, *Int J Nutr Sci.* 1(2), 1006-10
2. Pankaj Satapathy, Chinnu Salim, Madhava Naidu M and Rajini PS (2016). Attenuation of Dopaminergic Neuronal Dysfunction in *Caenorhabditis elegans* by Hydrophilic Form of Curcumin, *Neurochem. Neuropharm*, 2: 111. doi:10.4172/2469-9780.1000111
3. Siddharth Priyadarshi. Hafeeza K., Ramasamy R., B. B. Borse., & M. Madhava Naidu Flavour characterisation and free radical scavenging activity of coriander (*Coriandrum sativum* L.) foliage *Journal of Food Science & Technology*, DOI 10.1007/s13197-015-2071-1
4. K. Pradeep, R. Ravi, JamunaPrakash and M. Madhava Naidu Influence of blanching and drying methods on the quality characteristics of fresh turmeric (*Curcuma longa* l.) Rhizomes, *International Journal of Applied and Pure Science and Agriculture*, 32-44
5. Madhava Naidu, M., Vedhashree M., Pankaj Satapathy, Hafeeza Khanum, Ravi, R, Umesh Hebbar, H (2016) Effect of drying methods on the quality characteristics of Dill (*Anethum graveolens*) greens, *Food Chemistry*, 192, 849–856

6. Naga Sreevani, K.Hafeeza, G.Sulochanamma, J.Pura Naik & M.Madhava Naidu,(2013) Studies on antioxidant activity of *Zingiber zerumbet* spent and its constituents through in vitro models, *Wudpecker Journal of Food Technology* 1 (3), 48-55.
7. Sushma SB , Sowbhagya HB., Rastogi NK & M.Madhava Naidu (2013) Effect of selected pre-treatments on marigold flowers, , *J Food Sci Technol*, 50(1), 122–128
8. Sudha M. L. & Sushma W. Eipson & Hafeeza Khanum & M. Madhava Naidu & G. Venkateswara Rao (2013) Effect of normal/dehydrated greens on the rheological, microstructural, nutritional and quality characteristics of paratha—an Indian flat bread, *J Food Sci Technol*
9. Deeptanshu Srivastava, Jyotsna Rajiv, Mahadevamma, M. Madhava Naidu¹, J. Puranaik, P. Srinivas (2012) Effect of Fenugreek Seed Husk on the Rheology and Quality Characteristics of Muffins *Food and Nutrition Sciences*, 3, 1473-1479
- 10.M. Madhava Naidu, Hafeeza K, G. Sulochanamma, H. B. Sowbhagya, Umesh Hebbar, Maya Prakash & P. Srinivas (2012) Effect of Drying Methods on the Quality Characteristics of Fenugreek (*Trigonella foenum-graecum*) Greens, *Drying Technology* 30, 808–816,
11. M. Madhava Naidu, F. Sheema, R. Sai Surekha, R. Ravi & Manisha Guha (2012) Morphological, structural and functional properties of Maranta (*Maranta arundinacea L*) starch, *Food Sci. Biotechnol.* 21(3), 747-752
12. M. Madhava Naidu ., P. V. Sujith Kumar., B. N. Shyamala., G. Sulochanamma., Maya Prakash & M. S. Thakur (2012) Enzyme-Assisted Process for Production of Superior Quality Vanilla Extracts from Green Vanilla Pods Using Tea Leaf Enzymes *Food and Bioprocess Technology*, 5, 527–532
13. Pushpa S Murthy, & Madhava Naidu, M (2012) Production and Application of Xylanase from *Penicillium* sp. Utilizing Coffee By-products, *Food Bioprocess Technol.*, 5, 657–664
14. Pushpa S Murthy, & Madhava Naidu, M (2012) Recovery of phenolic antioxidants and functional compounds from coffee industry by-products , *Food Bioprocess Technology* ,5, 897–903
15. Madhava Naidu M, Sulochanamma G, Manjunatha JR. Prema Viswanath , Akshatha MD Divyashree KN' Hemalatha G & Srinivas P (2012) Determination of Antioxidant constituents in *Butea monosperma* L flowers, *Consulting Ahead*, 6 (2), 66-77

16. Pushpa S. Murthy, M.R. Manjunatha, G. Sulochannama & M. Madhava Naidu (2012). Extraction, Characterization and Bioactivity of Coffee Anthocyanins, *European Journal of Biological Sciences*, 4 (1), 13-19
17. S. Shakuntala, J. Pura Naik, T. Jeyarani, M. Madhava Naidu, & P. Srinivas (2011) Characterisation of germinated fenugreek (*Trigonella foenum-gracecum* L.) seed fractions, *International Journal of Food Science and Technology* , 46, 2337–2343
18. Priya Namrata Topno, Vinothini, Shilpa Habbankuppe Jayaprakash, Vishalakshi Varadaiah, Sathish Hasan Sheshagiri, Pushpa Murthy Srinivas, & Madheni Madhava Naidu (2011) Ginger–garlic paste in retort pouches and its quality, *Journal of Food Process Engineering* 36, 1–8
19. Madhava Naidu M, Sheema F, Ravi R, Manisha Guha & Srinivas P (2011) Physico-chemical and functional properties of starch isolated from ginger spent, *Starch/Starke* 63, 570–578
20. M. Madhava Naidu, B. N. Shyamala, J. Pura Naik, G. Sulochanamma, & P. Srinivas (2011) Chemical composition and antioxidant activity of the husk and endosperm of fenugreek seeds. *LWT - Food Science and Technology*, 44, 451-456,
21. K. Anuradha., M. Madhava Naidu, R. Sai Manohar & AR. Indiramma (2010) Effect of vanilla extract on the radical scavenging activity in biscuits. , *Flavour Fragr. J.* 2010, 25, 488–492,
22. Pushpa S Murthy, & Madhava Naidu, M (2010) Protease production by *Aspergillus oryzae* In solid state fermentation utilizing coffee by-products, *World Applied Sciences Journal*, 8(2), 199-205
23. Pushpa S Murthy, Madhava Naidu, M & Srinivas .P (2009), Synthesis of α -Amylase under Solid-state fermentation utilizing Coffee waste, *Journal of Chemical Technology and Biotechnology*, 84, 1246-1249
24. M. Madhava Naidu, B.N. Shyamala J.R. Manjunatha, G. Sulochanamma, & P. Srinivas (2009). A Simple HPLC method for separation of curcuminoids with potential radical scavenging activity. *Journal of Food Science* 74 (4) C312-C318
25. M. Madhava Naidu, G.Sulochanamma, S. R. Sampathu, & P. Srinivas (2008) Studies on extraction and antioxidant potential of green coffee *Food Chemistry*, 107, 377- 384.
26. B. N. Shyamala, M. Madhava Naidu, G.Sulochanamma & P. Srinivas (2007) Studies on the antioxidant activities of natural vanilla extract and its constituent

- compounds through *in vitro* models *Journal of Agric. Food Chemistry*, 55, 7738 - 7743.
27. K. Lakshmi, A.K. Vasanth Kumar, L. Jaganmohan Rao, & M. Madhava Naidu (2005) Quality evaluation of flavoured RTS beverage and beverage concentrate from tamarind pulp. *J. Food Sci. Technol.*, 42 (5), 411-415.
 28. M. Madhava Naidu & C.S. Sreenivasan (2004) Effect of absaisic acid and cytokinins on zygotic embryos of coffee. *Plant Cell Tissue and Organ Culture* 79, 279-284.
 29. Nidhi Singh., M.Madhava Naidu., S. R. Sampathu & B.S. Ramesh (2004) Studies on coffee extracts relating to antioxidative and weedicidal properties and stablization of chilli colour, *Journal of Plantation Crops*, 32(1), 37-42.
 30. Maneesh Sharma., M.Madhava Naidu., Suresh Kumar & A.G.S.Reddy (2003) Identification of varietal differences and determination of caffeine in roasted coffee samples using infrared spectroscopy *Journal of Plantation Crops* 31 (3), 13-17.
 31. Madhava Naidu M., Cicel Rang., Roger Frutos., C.S.Sreenivasan & R. Naidu (2001) Screening of *Bacillus thuringiensis* serotypes by polymerase chain reaction (PCR) for insecticidal crystal genes toxic against coffee berry borer *Indian Journal of Experimental Biology* 39, 148-154.
 32. Madhava Naidu M & H.L.Sreenath (1999) *In vitro* culture of zygotic embryos for germplasm preservation, *Plant Cell, Tissue and Organ Culture* 55, 227-230.
 33. Madhava Naidu M and C.S.Sreenivasan (1999) Effect of growth regulators on callus induction and somatic embryogenesis in Coffee, *Journal of Coffee Research* 27 (2), 121 - 126.
 34. Sreenath H.L., H.M. Shantha., K.H. Babu & M.Madhava Naidu 1995 somatic embryogenesis from integument (perisperm) tissues of Coffee, *Plant Cell Reports* 14, 670-673.

b) Books and Reviews

1. Pooja Rao J and M.M.Naidu (2016) Nanoencapsulation of Bioactive Compounds for Nutraceutical Foods **In: Sustainable Agriculture Reviews** (Springer)
2. Suhasini D.N., Juna Prakash and M.M.Naidu (2016) Medicinal properties and food uses of *madhuca longiflora* : a review **In: Natural Products in Food: Prospects and Applications**, Studium Press LIC, USA

3. K. Anuradha, M. Madhava Naidu & B.N. Shyamala (2013) Vanilla- Science of cultivation, curing, chemistry and nutraceutical properties, *CRC Reviews in Food Science and Nutrition* 53:1–27 (**Review**)
4. M Madhava Naidu,& H B Sowbhagya (2012). Technological Advances in Food Colours, *Chemical Industry Digest*, 3, 79-88(**Popular article**)
5. Sanjeev Kumar Sharma & M. Madhava Naidu (2008) *Science of Cocoa Processing*, Published by M/s Jain Brothers, 16/873, East Park Road, Karol Bagh, New Delhi-110 005 pp 1-166 (**Book**)
6. J. Pura Naik, H.B.Sowbhagya, M. Madhava Naidu & B.B.Borse (2011). Utilization of waste-spice and condiment industry **IN: Food processing-waste management**”, Published by M/s. Scientific Book Suppliers, New Delhi (**Book Chapter**) pp.195-228
7. M. Madhava Naidu & P. Srinivas (2010) *BUTEA MONOSPERMA* L – Chemistry, Technological Aspects, **In: Recent Progress in Medicinal Properties**, (Ed: Amani S.Awaad, V.K.Singh and J.N.Govil) Volume 28, 363-385, Studium Press LLC, USA (**Review**)
8. Vinod Kumar., M.Madhava Naidu & G.A. Ravishankar (2006) Developments in Coffee biotechnology - *in vitro* plant propagation and crop improvement, *Plant Cell Tissue and Organ Culture*, 87:49-65 (**Review**)
9. Pushpa S. Murthy and M. Madhava Naidu (2012) Sustainable management of coffee industry by-products and value addition—A review, *Resources, Conservation and Recycling*, 66, 45–58 (**Review**)

**c) Number of patents
i) granted**

1. Process for the preparation of colorant from oleoresin US7501141 (B2), Pura Naik J., S.R.Sampathu, M.Madhava Naidu and Sowbhagya H.B (2008)
2. Process for extraction of chilli (Capsicum) oleoresin US 7,097,867 B2, S.R.Sampathu, M. Madhava Naidu, H.B. Sowbhagya, J. Puranaik and N.Krishnamurthy (2006)
3. A process for the preparation of Indian traditional tokku like product from green tamarind, IN194299, M. Madhava Naidu, S.R.Sampathu, H.B.Sowbhagya, K.Girish and N. Krishnamurthy (2006)
4. A process for preparation of shelf-stable flavourant in powder form from poppy seed, IN193959 M. Madhava Naidu, S.R.Sampathu, H.B. Sowbhagya, K.Girish and N. krishnamurthy (2006)
5. An improved process for making white pepper from fresh green pepper, IN193549, S.R.Sampathu, M. Madhava Naidu, H.B.Sowbhagya and M.N. Ramesh (2006)

6. An improved process for preparing chilli oleoresin IN234035 (2003) S.R.Sampathu, M. Madhava Naidu, H.B. Sowbhagya, J. Puranaik and N.Krishnamurthy
7. An improved process for the preparation of Antioxidant conserves from green coffee IN248876 (2005) M.Madhava Naidu, B.Raghavan and S.R.Sampathu,K.Venkatesh murthy
8. A process for the preparation of natural vanilla extract form green beans MG 477 (2007) S.R.Sampathu., M.Madhava Naidu., B.Raghavan, P.Sujit Kumar, Thakur M.S & V.Prakash,
9. A process for the preparation of colorant from oleoresin IN226611 J. Puranaik, S.R.Sampathu, M. Madhava Naidu, H.B. Sowbhagya,

ii) applied for

1. An improved process for the preparation of Zerumbone crystals from shampoo ginger (*Zingiber Zerumbet*) M. Madhava Naidu, J. Pura Naik, H. B Sowbhagya, K. Venkatesh Murthy, P. S. Negi & Manjunatha JR 356/DEL/2015
2. An improved process for the preparation of curcuminoids from turmeric *Curcuma longa* L) oleoresin J. Pura Naik, M. Madhava Naidu, , H. B Sowbhagya, K.Hafeeza 97/DEL/2015.
3. A process for the preparation of dry chilli and powder from fresh red *chilli (capsicum annuum l.)*)) M. Madhava Naidu, J. Pura Naik, K. Venkatesh Murthy, P. S, 3061/DEL/2014
4. An improved process for the preparation of curcuminoids from turmeric (*Curcuma longa* L) oleoresin,M. Madhava Naidu, J. Pura Naik, H. B Sowbhagya, K.Hafeeza K. 97/DEL/2015
5. A process for production of turmeric powder from fresh turmeric rhizomes M. Madhava Naidu, J. Pura Naik, H. B Venkatesh Murthy, P. Hafeeza K 250/del/2013
6. A process for debitterd refined endosperm meal from fenugreek (*Trigonella foenum-gracecum* L.) seeds: J Pura Naik, M. Madhava Naidu, P. Srinivas. 030/DEL/2011
7. A process for soluble and insoluble dietary fiber from fenugreek (*Trigonella foenum-gracecum* L.) seeds pericarp J. Pura Naik, M. Madhava Naidu, P. Srinivas. 2929/DEL/2010
8. An improved process for the preparation of natural vanilla extract, S.R.Sampathu., M.Madhava Naidu., B.Raghavan, P.Sujit Kumar, Thakur M.S & V.Prakash, WO2009031160 (A1) 2010/009
9. A cashew apple beverage dry mix and process for the preparation thereof, M. Madhava Naidu, B.Ragavan and Maya Prakash, WO2006103514
10. Antioxidant conserves from green coffee and process for its preparation M.Madhava Naidu, B.Raghavan and S.R.Sampathu, WO2006103515
11. An improved process for the preparation of dehydrated green pepper without using chemicals, 805/DEL/2005, S.R.Sampathu, M. Madhava Naidu, H.B.Sowbhagya and N.Krishnamurthy

12. A process for the preparation of natural vanilla extract from fresh/stored/partially cured vanilla beans, S.R.Sampathu, M. Madhava Naidu, B.Raghavan, Sugit Kumar., M.S.Thakur and V.Prakash, 1985/DEL/ 2007.
13. A formulation for ready-to-reconstitute ginger beverage dry mix and a process there of, K.Ramalakshmi., L.Jagan Mohan Rao., M.Madhava Naidu and B.Raghavan, 810/DEL/05
14. A process for the preparation of carotinoid enriched oleoresin from marigold flowers H.B. Sowbhagya., M.Madhava Naidu and S.R.Sampathu 2829/DEL/2008
15. A process for the preparation of bland turmeric powder (colorant) with enhanced curcuminoids after selectively removing the non-coloring substances from turmeric (*Curcuma longa* L) Pura Naik J., M.Madhava Naidu., G.Sulochanamma and S.R.Sampathu, 1689/DEL/2010

c) Completed as **Principal Investigator**

1. Development of technology for making value added products from waste of coffee processing industry and low grade coffee (GAP-265) Funded by MFPI (2005-2007)
2. Development of value added products from palash (*Butea monosperma* L) SSP-145 (2007-2008) Sponsored by M/s Chattisgarh State Minor Forest Produce (Trading & Development) Co-operative Federation Ltd., Raipur (C.G.)
3. Development of Value Added Products from Thikur (*Curcuma angustifolia* L), SSP-153 (2009- 2010) Sponsored by M/s Chattisgarh State Minor Forest Produce (Trading & Development) Co-operative Federation Ltd., Raipur (C.G.)
4. Technical advisory assistance for the existing ginger and turmeric processing units in the state of Meghalaya to improve their efficiency, (CNP-428) sponsored by National Horticultural Board (2009-2010)
5. Setting up Spice grinding & packaging unit (CNP-439) for M/s. Food Smith India Private Limited, New Delhi (2010-11)
6. Technical advise on evaluation of controlled measures and safety concern about oleoresin extraction unit CSIR-CFTRI and M/s. Paprika Oleos (India) Limited, S.No.47/1 Part, Virudhunagar Taluk, Virudhunagar District(2012-13)
7. Biotechnological approaches to regulate fermentation and drying process of cocoa, MFPI, CSIR-CFTRI & Compco pvt. Limited, Puttur (2013-15)

Ongoing

8. Development of Technologies for value addition to under-utilized rhizomes, MoFPI (2015-18)
9. Design and development of amla grating machine and a process for green amla powder MoFPI (2015-18)

d) Professional recognitions, awards, fellowships received.

a) *Professional recognitions*

- Executive Councilor for Indian Society for Spices, ICAR-Indian Institute of Spices Research, Kerala
- Life member Indian Society for Plantation Crops (No. ISPCLM 52402), Kasargad, Kerala
- Life member –Indian Society for Spices Registration 179/1993
- Life member for Association of Food Scientists & Technologists (India)
- Course Co-Ordinator for conducting short term training courses on spice processing and natural colours
- Member for Course Advisory Committee, B.Sc., Biotechnology, Neo Nobel College Science and Technology, Gulbarga-585102
- Examiner s Panel to evaluate Ph.D thesis
 - Gandhigram Rural Institute-Deemed University, Dindugal District , Tamil Nadu,
 - Gulbarga University, Gulbarga, Karnataka, India
 - Manonmaniam Sundaranar University, Tirunelveli – 627 012, Tamil Nadu
 - Andhra University, Visakhapatnam-530 003, Andhra Pradesh
- Appointed by the University of Mysore, as paper Setter and Examiner for M.Sc., (Food Technology) Degree Examination
- Special invitee to the Board of Studies Meeting to frame the syllabus for pre-Ph.D and Ms.c Food Technology, JNTU, Anantapur.
- Editorial Board Member for “Research & Review: Journal of Food Science and Technology” SYM Journals, Division of Consortium eLearning Network Pvt. Ltd ., A-105 IIIrd Floor, Sector-63, Noida - 201 301 (U.P.), INDIA, Tel.: (+91) 0120-4781210, 4781211

b) awards/fellowships

- 1) Best Scientific and Technical contribution individual award for 2010-11 (CFTRI Annual award)
- 2) Best poster award entitled “ Preconditioning of marigold flowers for enhanced carotinoid extraction” 2005 by AFST(I)
- 3) Best poster award entitled “Enzyme assisted process for making white pepper” ICFOST 2002 by AFST (I)
- 4) Biotechnology National Associate ship from Department of Biotechnology, Government of India 1993-94
- 5) “AMULYA” award by Karnataka State Innovation Council and Department of Industries and Commerce (2012)