Biodata of the Scientist

A.Personal information

1.Name(With Title): Dr. (Mrs.) G. Padmaja

1.a. Qualification: PhD Biochemistry

2. Designation: Principal Scientist & Head, Division of Crop Utilization

3. Address (Personal): Dr. G. Padmaja

Kalhara, BN 339, Ramavarma Lane, Bapuji Nagar, Pongummudu, Medical College P. O. Thiruvananthapuram- 695 011

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5. Email: padmajabn@yahoo.com

6. Countries visited: UK, USA, Indonesia, Malaysia, Bangladesh

B. Professional information

1. Area of specialization: Biochemistry and Post harvest technology of tuber crops

2. Area of interest: Biochemistry of tuber crops with special reference to the utilization of tuber crops as food and feed and value addition**.**

3. Number of institute projects completed (Add list):

Standardization of ensiling techniques for cassava and sweet potato, (as PI)
Production technology for fried and baked food products from tuber crops (as PI)
Development of health drinks and instant food mixes from tuber crops (as PI)
Developing technology for Nutritionally fortified pasta and designer food products from tuber crops (as PI)

4. Number of Institute projects being handled (Add list):

(i). Studies on functional and specialty food products from tuber crops (as PI)

5. Number of externally funded projects completed(Add list):

Anti- nutrient factors in sweet potato, yams and aroids: Isolation, Biological variations and processing technologies for removal of proteinase and amylases inhibitors (As PI)
Primary processing and value addition of sweet potato and yams of self employment generation by women (AS PI)
Bio-processing of cassava and its cellulosic byproduct for the production of ethanol and butanol biofuels using novel eco-friendly enzyme systems (AS PI).
Overcoming key constrains to Productivity and Utilization by Genetic improvement of under utilized and neglected crops in low income deficit countries (As Co- PI)
Integrated technologies for the value addition and Post Harvest management in Palms, Spices and Tropical tuber crops (As Co- PI)

6. Number of externally funded projects being handled (Add list):

(i) Development of low glycaemic noodles from sweet potato and low calorie sago from cassava as antidiabetic foods (As PI)

7. Number of students guided for a) Ph.D: Six__b) M.Phil: None_____c) M.Sc: 30

8. Number of students being guided for a) Ph.D: Four___b) M.Phil: None) M.Sc: One

8.a. information about the students under your guidance

Name of the student	Course undergoing (Ph.D/M.Phil/M.Sc)	Title of the project/Thesis	E-mail address
Dr.Sasikiran.K	PhD completed	Isolation, characterization and metabolic significance of trypsin and chymotrypsin inhibitors in tuber crops	
Dr.M.R.Rekha	PhD completed	Biological variations, metabolic significance and kinetic properties of the amylase inhibitor of tuber crops	
Dr. S. Pradeepkumar	PhD completed	Investigations on allelochemicals in	

		arrowroot (*Maranta arundinacea*)	
Dr. .Jisha. S	PhD completed	Development of functional foods from cassava	
Smt..Regy Johnson	PhD completed	Process optimization and enzyme technology for the production of High Fructose Syrup from cassava and sweet potato	
Dr. Lekshmi.S	PhD completed (As Co-Guide)	Antitumour properties of selected medicinal plants of Zingiberaceae	
Dr. Jyothi G Krishnan	PhD completed	Process optimization for the production of traditional and functional pasta and flakes from sweet potato	
Smt. Renjusha Menon	Ongoing	Process Biotechnology for the Production of low glycaemic spaghetti from Sweet potato	
Smt. Pooja. N. S	Ongoing	Utilization of agricultural residues from Cassava for lignocellulosic ethanol production	
Ms. Vani.M	Ongoing (As Co-guide)	Biochemical soil quality indices for sustainable cassava production	
Ms. Dhanya Thankachan	Integrated MSc	Enhancing sweet potato starch extractability using enzyme biotechnology and utilization of starch for food applications	

9. Information on guide ship

Guide ship for Ph.D/ M.Phil/ M.Sc	University	Subject

PhD	University of Kerala	Biochemistry
PhD	University of Kerala	Biotechnology
PhD	University of Kannur	Biochemistry
Integrated MSc	Kerala Agricultural University	Food Biotechnology

10. Number of Research papers (Add list): **Separately attached as Annexure I**

11. Number of Books/Book chapters (Add list): **Separately attached as Annexure II**

12. Number of Technical Bulletins (Add list): **Separately attached as Annexure III**

13. Consultancies offered (Add list and give a brief description):

(i) Value added fried snack foods from cassava

Cassava tubers are highly perishable and cannot be stored for more than 2-3 days after harvest. Hence to avoid heavy post harvest losses, it is necessary to process them immediately. Technology has been perfected at CTCRI for making a number of extruded fried snack foods, having a variety of taste, appearance and mouth feel. Fortification is attempted in these products through the addition of Bengal gram flour, refined wheat flour (maida), rice flour, egg etc. The products were found to have protein content in the range of 5-10% and a low oil uptake was an added advantage. Five to ten times value addition is possible by converting fresh cassava tubers to fried products, which also have extended shelf life. Ten fried food products *viz*., pakkavada, hot sticks, sweet fries, sweet dimons, salty fries, salty delight, murukku, crisps, nutrichips (with egg) and nutrichips (without egg) were prepared.

(ii) Improved technology for fried cassava chips

Fried tapioca chips is a traditionally important snack food of Kerala. Besides domestic market, the product also has export potential, owing to the cultural attachment towards tapioca by the Keralites abroad. Nevertheless, a major problem with regard to the market potential is the hardness, when compared to fried potato chips, besides other problems like inconsistency in product quality due to the wide variation in the initial raw material and high

cyanogens retention in the chips. Hence a new process was developed to make cassava chips softer and crisp through a pretreatment technology.

(iii) Functional pasta from cassava and sweet potato

Pasta products are getting wide acceptability as convenience foods in India. They are also regarded as health foods due to their 'lente' (ability to release glucose slowly to blood) property. Technology has been perfected at CTCRI top make a number of pasta products from cassava and sweet potato which include gluten free pasta, high protein and dietary fiber pasta, carotene and betanin enriched pasta etc.

(iii) **Byproduct utilization of cassava as poultry feed**

The edible snack food products from cassava (tapioca) utilize only the edible part of the tuber. The peel, which constitutes around 10% by weight of tuber, is a waste byproduct, which unless used properly will add to pollution load of the Process Units. Research at CTCRI has shown that the solid waste could be effectively converted to broiler feed, facilitating economic broiler farming.

(iv) Ensiling technology for cassava as cattle feed

Cassava tubers cannot be economically utilized for composite cattle feed manufacture due to their low protein content. However, it could be transformed into a shelf stable cattle feed through ensiling technology. The technology has been perfected at CTCRI which involve mixing chopped cassava tubers with rice straw in proportions of 9:1 and packing to silos. Silage will be ready within a week.

14. Technologies developed: Add list and give a brief description):

Same as above

15. Patents/Copyrights obtained (Add list and give a brief description):

A patent application entitled (Process for making high protein carotene rich pasta from sweet potato has been filed.

16. Any other information: (present)
    1. Member- PG Committee
    2. Member, Institute Technology Management Committee (ITMU)
    3. Member, Institute Deputation Committee (IDC)
    4. Major Advisor, Advisory Committee for Integrated MSc Biotechnology Course student, College of Agriculture, Vellayani
    5. Recipient of ICAR Team Research Awards- Twice in 1986 and 1996

Annexure I

Research Publications

Sl.No.	Name(s) of Authors	Title of the paper	Name of the Journal, Vol. No. & Issue No.
1	**G.Padmaja,** C. Balagopalan and V.P.Potty	Polyphenols and vascular streaking in cassava	Cassava Newsletter, 10, 5-6. 1982
2	**G. Padmaja** and P. Rajamma	Biochemical changes due to weevil (*Cylas formicarius* Fab.) feeding on sweet potato	J. Food Sci. Technol. 19 (4),162-163, 1982
3	**G. Padmaja**, C. Balagopalan and V.P.Potty	Cellulolytic , amylolytic and pectinolytic enzyme activities of deteriorating cassava roots	J. Root Crops, (1&2), 35-40, 1982
4	**G. Padmaja**	Evaluation of techniques to reduce assayable tannin and cyanide in cassava leaves	J. Agric. Food Chemistry **(USA) 37**: 712-716, 1989
5	**GG. Padmaja**	Cyanide detoxification in cassava for food and feed uses	CRC Critical Reviews in Food Science & Nutrition (Published by CRC press, Boca Raton , **Florida**) **35**(4): 299-339,1995
6	**G. Padmaja** and C. Balagopalan	Cellular and extracellular enzymes associated with the post harvest deterioration of cassava tubers	J. Food Sci. Technol. 22 (2): 82-87,1985.
7	**G. Padmaja** and C. Balagopalan	Cyanide degradation by *Rhizopus oryzae*	Can. J. Microbiol. 31: 663-669,1985
8	**G. Padmaja** and K.R. Panikkar	Pattern of enzyme changes in rabbits administered linamarin or potassium cyanide	Indian Journal of Expl. Biology **27**: 551-555, 1989
9	**GG. Padmaja** and K.R. Panikkar	Intermediary metabolic changes in rabbits administered linamarin or potassium cyanide	Indian Journal of Expl. Biology **27**: 635-639,1989
10	**G. Padmaja** and C. Balagopalan	Effect of molasses and urea on the silage fermentation of cassava	Tropical Science **(UK), 31**: 257-264,1991
11	**GG. Padmaja**, Mathew George and S.N. Moorthy	Detoxification of cassava during fermentation with a mixed culture inoculum	Journal of the Science of Food and Agriculture **(UK)** 63, 473-481, 1993
12	**GG . Padmaja**, Mathew George, S.N. Moorthy, Zoe Bainbridge, Vanessa Plumb, J.F. Wood and C.J. Powell	Nutritional evaluation of the starchy flour obtained from cassava tubers on fermentation with a mixed culture inoculum	Journal of Agricultural and Food Chemistry **(USA)** 42: 766-770,1994
13	**GG. Padmaja**, T. Premkumar, Vanessa Plumb, Zoe Bainbridge and J.F. Wood	Amino acid and sugar profiles of insect infested and uninfested plain dried *versus*	Tropical Science **(UK) 34**: 409-451,1994

		parboiled cassava chips.	
14	R.C. Ray, **G. Padmaja** and S.N. Moorthy	Extracellular rhodanese production by *Rhizopus oryzae*	Zentralbl. Mikrobiol. 145. 259-268,1990
15	R.C. Ray, **G. Padmaja** and C. Balagopalan	Simultaneous colorimetric determination of thiosulphate and thiocyanate in the culture medium of *Rhizopus oryzae*	Journal of Microbiological Methods 12, 189-195,1990
16	Mathew George, G. Padmaja and S. N. Moorthy	Enhancement in starch extractability from cassava (*Manihot esculenta* Crantz) tuber through fermentation with a mixed culture inoculum	Journal of Root Crops 17(1): 1-9,1991
17	S.N. Moorthy, Mathew George and **G. Padmaja**	Functional properties of starchy flour from cassava on fermentation with a mixed culture inoculum	Journal of the Science of Food and Agriculture **(UK)** 61: 443-447,1993
18	Mathew George, S.N. Moorthy and **G. Padmaja**	Biochemical changes in cassava tuber during fermentation and its effect on extracted starch and residue	Journal of the Science of Food and Agriculture **(UK)** 69: 367-371, 1995
19	Sheeba Ravi and **G. Padmaja**	Mechanism of cyanogens reduction in cassava roots during cooking	Journal of the Science of Food and Agriculture **(UK)** 75: 427-432, 1997
20.	C.S. Easwari Amma, **G. PadmajaPadmaja** and P.K. Thankamma Pillai	Performance of top cross selections of cassava	Journal of Root Crops 19(1): 29-34, 1993
21	R.B. Nair, B. Vimala, G.G. Nayar and **G. Padmaja**	R- 80/168: A new high carotene short duration hybrid in sweet potato	J. Root Crops 12(2), 97-102, 1986
22	M.R. Rekha, **G.Padmaja** and P.K. Thankamma Pillai	Cultivar differences in the apparent amylase inhibitory activity of taro tubers	J. Root Crops *23*(1), 39-44, 1997
23	K. Sasikiran, **G.Padmaja** and P.K.Thankamma Pillai	Biological variations in the apparent proteinase inhibitory activities of root crops. I. Trypsin inhibitory activity of taro tubers	J. Root Crops 23(1), 45-50, 1997
24	K.Sasikiran, **G.Padmaja** and P.K.Thankamma Pillai	Biological variations in the apparent proteinase inhibitory activities of root crops. II. Chymotrypsin inhibitory activity of taro tubers	J. Root Crops. 23(1), 51-56, 1997
25	M.R. Rekha, **G.Padmaja**, C.S.Easwari Amma and M.N.Sheela	Cultivar differences in the alpha amylase inhibitor activity of sweet potato and yam tubers.	J. Root Crops, 25(2), 185-191, 1999
26	K. Sasikiran, **G.Padmaja**, C.S.Easwari Amma and M.N.Sheela	Trypsin and chymotrypsin inhibitor activities of sweet potato and yam tubers	J. Root Crops, 25(2), 95-101, 1999

27	K. Sasikiran, M.R. Rekha and **G.Padmaja**	Proteinase and alpha-amylase inhibitors of sweet potato: changes during growth phase, sprouting and wound induced alterations.	Botanical Bulletin of Academia Sinica, China, 43: 291-298, 2002
28	M.R. Rekha and **G.Padmaja**	Alpha amylase inhibitor changes during processing of sweet potato and taro tubers	Plant Foods for Human Nutrition, 57(3-4), 285-294, 2002
29	K. Sasikiran and **G.Padmaja**	Inactivation of trypsin inhibitors in sweet potato and taro tubers during processing.	Plant Foods for Human Nutrition, 58, 153-163, 2003
30	**G.Padmaja ,** K. Sasi Kiran, M.R. Rekha and S.Pradeepkumar	Proteinaceous enzyme inhibitors in root and tuber crops: An overview	J. Root Crops, 25(2), 1-25, 1999
31	M. R. Swain, S. Kar, **G. Padmaja** and R. C. Ray	Partial characterization and optimization of extracellular α -amylase from *Bacillus subtilis* isolated from cowdung microflora	Polish Journal of Microbiology 55: 289-296, 2006
32	M.R. Rekha, K. Sasi Kiran , S. Pradeep kumar and **G.Padmaja**	Alpha-amylase and proteinase inhibitors of sweet potato and taro: changes during storage	J. Root Crops 26 (1): 43 – 47, 2000
33	S.N. Moorthy and **G. Padmaja**	Comparative study on digestibility of raw and cooked starch of different tuber crops	J. Root Crops (Special Issue), 17; 255-258,1990.
34	K. Sasi Kiran, M.R. Rekha and **G.Padmaja**	Wound-induced alterations in the proteinase inhibitor levels in sweet potato and taro tubers	J. Root Crops 28 (2): 47-51. 2002
35	**G. Padmaja**, C. Balagopalan, S.N. Moorthy and V.P. Potty	Yuca Rava and Yuca Porridge: The functional properties and quality of two novel cassava food products	Cassava Flour and Starch: Progress in Research and Development, CIAT , Cali, Colombia, pp. 323-330, 1996
36	M.R. Rekha, K. Sasi Kiran and **G. Padmaja**	Inhibitor potential of protease and alpha- amylase inhibitors of sweet potato and taro on the digestive enzymes of storage pests	J. Stored Products Research 40 : 461-470, 2004
37	K. Sasi Kiran, M.R. Rekha and **G. Padmaja**	Purification and partial characterization of proteinase and α-amylase inhibitors from lesser yam (*Dioscorea esculenta*)	International Journal of Food Properties 7(2): 185-199, 2004
38	S.N. Moorthy and **G. Padmaja**	A rapid titrimetric method for the determination of starch content of cassava tubers	J. Root Crops 28(1), 31-38, 2002
39	S. Pradeep Kumar, K Sasi Kiran, S.N. Moorthy and **G. Padmaja**.	Physico-chemical properties of arrowroot starch during growth phase	Trends in Carbohydrate Chemistry, 8: 171 – 173, 2003
40	**G. Padmaja**, M.R. Rekha, K.	*In vitro* digestibility,	Trends in Carbohydrate

	Sasi Kiran and S.N. Moorthy	biochemical and viscometric properties of starch and flour from sweet potato extracted using organic acids	Chemistry, 8: 197 – 201, 2003
41	Regy Johnson, S.N. Moorthy and **G. Padmaja**	Optimized parameters for the enzyme catalysed liquefaction and saccharification of sweet potato starch	J. Root Crops 31 (1) : 7-13, 2005
42	S. Jisha, and **G. Padmaja**	Nutritional characteristics of cassava based composite flours	J. Root Crops 31 (1): 40-49, 2005
43	**G. Padmaja** and M.S. Sajeev	Compositional differences affecting the nutritional and textural qualities of fried products from cassava based composite flours	J. Root Crops 32(2): 115-122, 2006.
44	Sreekumari, M.T., Abraham, K., **Padmaja, G**. and Suja, G	'Sree Kiran' – an improved taro hybrid	J. Root Crops 32(2): 141-145, 2006.
45	S. Jisha, **G. Padmaja**, S. N. Moorthy and K. Rajeshkumar	Pre- treatment effect on the nutritional and functional properties of selected cassava-based composite flours.	Innovative Food Science and Emerging Technologies, pp. 587-592, 2008.
46	S. Jisha and **G. Padmaja**	Dietary fibre enhancement in cassava based composite flours through fortification.	J. Root Crops, 34 (1) 26-33; 2008.
47	S. Lakshmi, G. S. Dhanya, Beena Joy, **G. Padmaja** and Remani, P	Inhibitory effect of an extract from *Curcuma zedoaria* on human cervical carcinoma cells.	Medicinal Chemistry Research 17, 335-344, 2008
48	S. Pradeepkumar, G. M. Nair and **G. Padmaja**	Wound Induced Alterations in Phenols and their Oxidising Enzymes in Arrowroot	J. Root Crops, 34 (2); 172-180, 2008.
49	S. Pradeepkumar, G. M. Nair and **G. Padmaja**	Purification and characterization of peroxidases from arrowroot (*Maranta arundinacea* L.) leaves	J. Root Crops, 34 (2); 164-171, 2008.
50	Jisha, S., **G. Padmaja** and M.S. Sajeev.	Nutritional and textural studies on dietary fiber enriched muffins and biscuits from cassava based composite flours.	Journal of Food Quality, DOI:10.1111/j.1745-4557.2010.00313.x.
51	Jisha, S. and **G. Padmaja**.	Whey protein concentrate fortified baked goods from cassava based composite flours: Nutritional and functional properties.	Food and Bioprocess Technology: An International Journal 4:92-101, 2008.
52	Jisha, S., **G. Padmaja**, S.N. Moorthy and M.S. Sajeev.	Textural and rheological properties of Whey protein concentrate fortified baked goods from cassava based composite flours:	J. Food Sci. Technol. 46 (6): 532-537, 2008.

53	Jisha, S.and **G. Padmaja**.	Dietary fibre enhancement in cassava based composite flours through fortification.	Journal of Root Crops 34 (1): 26-33, 2008.
54	Jisha, S., J.T. Sheriff and **G. Padmaja**.	Nutritional and functional properties of extrudates from blends of cassava flour with cereal and legume flours.	International Journal of Food Properties. 13: 1002-1011, 2008.
55	Regy Johnson**, G. Padmaja** and S.N. Moorthy	Comparative production of glucose and high fructose syrup from cassava and sweet potato roots by direct conversion techniques.	Inno. Food Sci. Emerg. Technologies 10: 616–620,2009
56	Regy Johnson, S.N.Moorthy and **Padmaja, G**	Production of High Fructose Syrup from Cassava and Sweet Potato Flours and their Blends with Cereal Flours,	Food Science and Technology: International, 16: 251-258, 2010.
57	Jisha, S., Sheriff, J.T. and **Padmaja, G**.	Nutritional and functional properties of extrudates from blends of cassava flour with cereal and legume flours.	International Journal of Food Properties. 13: 1002-1011, 2010.
58	Jyothi. G.Krishnan. **G.Padmaja**. S.N.Moorthy and G.Suja	Biochemical changes in cream and orange-fleshed cured sweet potatoes cooked under different modes.	J. Root Crops, 2011, 37 (1), 65-76, 2011.
59	Jisha, S. and **Padmaja, G.**	Whey protein concentrate fortified baked goods from cassava based composite flours: Nutritional and functional properties.	Food and Bioprocess Technology: An International Journal 4:92-101, 2011.
60	Shanavas, S., **Padmaja, G.,** Moorthy, S.N., Sajeev, M.S and Sheriff, J.T.	Process Optimization for Bioethanol Production from Cassava Starch using Novel Eco-friendly Enzymes.	Biomass & Bioenergy 35: 901-909, 2011.
61	Divya Nair, M.P., **Padmaja, G** and Moorthy, S.N.	Biodegradation of Cassava Starch Factory Residue using a Combination of Cellulases, Xylanases and Hemicellulases.	Biomass & Bioenergy 35: 1211-1218, 2011.
62	Jyothi. G.Krishnan, **G.Padmaja**, S.N.Moorthy, G.Suja and M.S.Sajeev.	Effect of pre-soaking treatments on the nutritional profile and browning index of sweet potato and yam flours.	Inno. Food Sci. Emerg. Technologies. 11: 387–393, 2010.
63	Jyothi G Krishnan, Renjusha Menon, **Padmaja G**, Sajeev MS and Moorthy SN.	Evaluation of nutritional and Physico mechanical properties of dietary fibre enriched sweet potato pasta.	European Food Research and Technology. 234:467–476, 2012.
64	Jyothi G Krishnan, Renjusha Menon, **Padmaja G**, Sajeev MS and Moorthy SN.	Nutritional and Functional characteristics of protein fortified pasta from sweet potato.	Food and Nutrition Sciences.2, 944-955, 2011.
65	Regy Johnson and G. Padmaja.	Utilization of cassava fibrous	Industrial Biotechnology,

		residue for the production of glucose and high fructose syrup.	7(6): 448-455. 2011.
66	Divya Nair, M.P., Padmaja, G., Sajeev, M. S and Sheriff, J.T.	Bioconversion of cellulo-starch waste from cassava starch industries for ethanol production using pretreatment techniques and improved enzyme systems.	Industrial Biotechnology, 8(5), 300-308, 2012.
67	Renjusha Menon, G. Padmaja, M.S. Sajeev and J.T. Sheriff.	Effect of Fortification with Different Starches on Starch Digestibility, Textural and Ultrastructural Characteristics of Sweet Potato Spaghetti.	Journal of Root Crops, 38(2), 157-167, 2012.

Annexure II

Books/ Book chapters

1. C. Balagopalan, **G. Padmaja**, S.K. Nanda and S.N. Moorthy, 1988. "Cassava in Food,Feed and Industry". CRC Press , Florida, U S A.

2. G.Padmaja.1994. Utilization of Tuber Crops. In: Advances in Horticulture: (Eds. Chadha K.L and Nayar. G.G), Malhotra Publishing House, New Delhi. pp.609-676

3. G. T. Kurup, M. S. Palaniswami, V. P. Potty, **G. Padmaja**, S. Kabeerathumma and Santha V. Pillai. 1996. Tropical tuber crops : Problems, Prospects and Future strategies. Oxford & IBH, New Delhi.

4. C. Balagopalan, S. N. Moorthy, **G. Padmaja**, S. K. Nanda, Bala Nambisan, T. Premkumar, S. Sundaresan ,Lila Babu, Mathew George, J. T. Sheriff, R. C. Ray, B. Shanthi, M. S. Sajeev and A.N. Jyothi. 2000. Integrated Technologies for the value addition and Post Harvest Management in Tropical tuber Crops. CTCRI, pp.147.

5. **Padmaja, G**., Moorthy, S.N., Bala Nambisan, Lila Babu, Sundaresan, S., Sajeev, M.S., Nanda, S.K., Susan John, K., Rajaleshmy, L., Sudha Devi, K.S. and Manikantan Nair, M. 2005. Analytical Methodologies for Tropical Tuber Crops. Laboratory Manual Series 02, CTCRI, Thiruvananthapuram.

6. **G.Padmaja** 1996 3. Post harvest problems and utilization potential of tropical tuber crops. In: Issues in Horticulture Vol-6: (Ed. Chadha K.L), Malhotra Publishing House, New Delhi, 415-450.

7. **G.Padmaja** and Mathew George. 1999. Oriental Fermented Foods (Chapter 2) In: Biotechnology: Food Fermentation (Microbiology, Biochemistry and Technology: (Eds. Joshi. V.K and Ashok Pandey).Educational Publishers and Distributers, New Delhi. pp.523-582.

8. **G. Padmaja**. 2009. Book Chapter on 'Uses and Nutritional data of Sweet potato' In: The Sweet potato (Gad Loebenstein and George Thottappilly, Eds.), Springer Publications, pp. 189-234.

9. **G. Padmaja**, J. T. Sheriff and M. S. Sajeev. 2012. Food and nutritional benefits of sweet potato. In: Fruit, Vegetable and Cereal Science and Biotechnology, 6 (Special issue 1), 115-123, 2012.

10. A. N. Jyothi, M. S. Sajeev, **G. Padmaja** and S. K. Naskar. Biodegradable Nanocomposite Materials for Food Packaging, In: Nanotechnology in Agriculture (Eds: Singh, H. P. Anilkumar and Parthasarathy, V. A.), Westville Publishers, New Delhi, 2012.

11. **G. Padmaja** and A. N. Jyothi. Roots and Tubers, In: Valorization of Food Processing By-products (Ed. M. Chandrasekaran), CRC Press, Taylor & Francis Group, Boca Raton, Florida, 2013, pp 378-414.

12. **G.Padmaja et al., Analytical Methodologies for Tropical Tuber Crops**, 2005, St. Joseph's Press, Thiruvananthapuram

Annexure III

Technical Bulletins

1. C.Balagopalan and G. Padmaja. Cassava Spoilage and Preservation. 1982. Technical Bulletin Series No.3,CTCRI, Trivandrum

2. G.Padmaja,C.Balagopalan, V.P.Potty and R.C. Ray.1993. Nutritional Improvement of cassava Products using Microbial Techniques for Animal Feeding. Technical Bulletin Series No.17. CTCRI,Trivandrum.

3. G. Padmaja ,1999. Cassava Ensiling. Technical Bulletin Series: 27, CTCRI, pp. 26

4. G. Padmaja and T. Premkumar, 2002. Tuber crop recipes. Technical Bulletin Series: 36, CTCRI, pp 25.