

## **Biodata of the Scientist**

Division/Section: Division of Crop Improvement, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram-695 017, Kerala, India.

### **A. Personal information**

1. Name (With Title): Dr Latchumi Kanthan Bharathi
- 1.a. Qualification: Ph.D.
2. Designation: Principal Scientist
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5. Email: LK.Bharathi@icar.gov.in
6. Countries visited: USA, Australia, Thailand, Philippines

### **B. Professional information**

1. Area of specialization: Crop Improvement (wide hybridization)
2. Area of interest: wide hybridization
3. Number of institute projects completed (Add list): Nil
4. Number of Institute projects being handled (Add list): 1
5. Number of externally funded projects completed (Add list):
6. Number of externally funded projects being handled (Add list): Nil
7. Number of students guided for a) Ph. D. b) M. Phil. c) M. Sc.: Nil
8. Number of students being guided for a) Ph. D. 1 b) M. Phil. c) M. Sc. Nil
- 8.a. information about the students under your guidance: NA
9. Information on guide ship: NA
10. Number of Research papers (Add list): 29 (Please see Annexure-5)

### **I Research papers**

1. **Bharathi LK, Medhi RP, Venkatesh A, Damodaran V** 2004. Effect of different planting densities on growth and yield of Chinese potato (*Solenostemon rotundifolius*). **J Root Crops** 30(2) :157-158
2. **Bharathi LK, Medhi RP, Venkatesh A, Damodaran V** 2005. Evaluation of sweet potato (*Ipomoea batatus* Lam.) varieties for Andaman conditions. **J Root Crops** 31(2) :144-145
3. **Bharathi LK, Naik G, Dora DK** 2005. Genetic divergence in spine gourd (*Momordica dioica* Roxb.). **Veg Sci** 32(2) :179-181
4. **Bharathi LK, Medhi RP, Venkatesh A, Damodaran V** 2005. Performance of yams in Bay island. **Orissa J Hort** 33(2) :7-10
5. **Bharathi LK, Naik G, Dora DK** 2006. Studies on genetic variability in spine gourd (*Momordica dioica*). **Indian J Hort** 63(1): 96-97
6. **Bharathi LK, Naik G, Dora DK** 2006. Correlation and path analysis in spine gourd (*Momordica dioica* Roxb.). **Orissa J Hort** 33(2) :105-108
7. **Bharathi LK, Naik G, Vishal Nath.** 2008. Selection indices for parthenocarpic clones of ivy gourd (*Coccinia grandis*). **Indian J Agric Sci** 78(10) :905-908
8. Singh HS, **Bharathi LK, Sahoo B, Naik G** 2008. New record of vine borer (*Apomycyna saltator*) and its differential damage to pointed gourd (*Trichosanthes dioica*) varieties/accessions in Orissa. **Indian J Agric Sci** 78(9) :813-814
9. **Bharathi LK, Vinod, Munshi AD, Behera TK, Shanti C, Kattukunnel JJ, Das AB, Vishalnath** 2010. Cytomorphological evidence for segmental allopolyploid origin of Teasle gourd (*Momordica subangulata* subsp. *renigera*). **Euphytica** 176(1) :79-85
10. **Bharathi LK, Munshi AD, Vinod, Shanti C, Behera TK, Das AB, Joseph JK, Vishalnath** 2011. Cyto-taxonomical analysis of *Momordica* L. (Cucurbitaceae) species of Indian occurrence. **J Genet** 90 (1): 21-30
11. **Bharathi LK, Vinod, Das AB, Ghosh N, Behera TK, Naik G, Vishalnath** 2011. Cytomorphological and molecular characterization of interspecific F<sub>1</sub> hybrid of *Momordica dioica* Roxb. × *Momordica subangulata* subsp. *renigera*. **African J Agric Res** 6(13): 2982-2990

12. **Bharathi LK**, Munshi AD, Behera TK, Joseph JK, Vishalnath, Bisht IS 2010. Genetic resources of spine gourd (*Momordica dioica* Roxb. Ex Willd.): An underexplored nutritious vegetable from tribal regions of eastern India., **Plant Genet Resour** 8(3) :225-228
13. Sivakumar PS, Panda SH, Ray RC, Naskar SK, **Bharathi LK** 2010. Consumer acceptance of lactic acid fermented sweet potato pickle. **J sensory studies** 25: 706-719
14. **Bharathi LK**, Parida SK, Munshi AD, Behera TK, Raman KV, Mohapatra T 2012. Molecular diversity and phenetic relationship of *Momordica* spp. of Indian occurrence. **Genet Resour Crop Evol** 59(5): 937-948
15. **Bharathi LK**, Munshi AD, Behera TK, Vinod, Joseph JK, Bhat KV, Das AB, Sidhu AS 2012. Production and preliminary characterization of novel inter-specific hybrids derived from *Momordica* species. **Curr Sci** 103(2): 178-186
16. **Bharathi LK**, Rengasamy S, Singh S, Prabhu KV, Sharma A, Singh A, Behera TK, Sivakumar PS 2011. Estimation of capsaicin and capsaicinoid contents of high pungent chilli accessions of Andaman & Nicobar Islands and North-East India. **Indian J Hort** 68(4): 551-555
17. **Bharathi LK**, Vishalnath 2011. Phenotypic diversity analysis in pointed gourd (*Trichosanthes dioica* Roxb.). **Cucurbit Genet Coop Rep** 33-34: 62-64
18. Swaroop K, Suryanarayana MA, **Bharathi LK** 2001. Bio diversity and performance of solanaceous vegetable crops in Andaman and Nicobar Islands. **J. Andaman Sci Assoc** 17(1&2): 112-115
19. **Bharathi LK**, Behera TK, Singh R, Singh A (2013) Carotenoid contents in sweet gourd (*Momordica cochinchinensis* Spreng.) accessions of India. **Indian J. Hortic.** 70(2): 165-169
20. **Bharathi LK**, Singh HS, Shivashankar S, Ganeshamurthy AN, Sureshkumar P (2014) Assay of Nutritional Composition and Antioxidant Activity of Three Dioecious *Momordica* Species of South East Asia. **Proc. Natl. Acad. Sci., India, Sect. B Biol. Sci.**84 (1): 31-36 DOI 10.1007/s40011-013-0205-7

21. **Bharathi LK**, Munshi, AD, Behera TK, Joseph John, K, Bhat KV, Sidhu AS (2013) Morphological relationship among the *Momordica* species of Indian occurrence. **Indian J Genet** 73(3): 278-286
22. **Bharathi LK**, Singh HS, John, JK (2014). A novel synthetic species of *Momordica* (*M. X suboica* Bharathi) with potential as a new vegetable crop. **Genet Resour Crop Evol** 61: 875-878 DOI 10.1007/s10722-014-0092-7
23. **Bharathi LK**, Singh HS, Shivashankar S, Ganeshamurthy AN (2014) Characterization of a fertile backcross progeny derived from inter-specific hybrid of *Momordica dioica* and *M. subangulata* subsp. *renigera* and its implications on improvement of dioecious *Momordica* spp. **Sci Hort** 172: 143-148
24. Singh S, Singh DR, **Bharathi LK**, Dam Roy S (2014) Antioxidant rich fruit fractions from *Momordica* Spp. and their commercial potential in functional food industry. **J Chem Biol Phy Sci** 4(4): 3456 - 3463
25. John KJ, Roy YC, Krishnaraj MV, Nair RA, Deepu M, Latha M, Bhat KV, **Bharathi LK** (2017) [A new subspecies of \*Momordica cochinchinensis\* \(Cucurbitaceae\) from Andaman Islands, India.](#) **Genet Resour Crop Evol** doi:10.1007/s10722-017-0512-6
26. Misra RC, Pani DR, **Bharathi LK**, Ahlawat SP (2017) *Abelmoschus angulosus* var. *mahendragiriensis* (Malvaceae): a new taxonomic variety of wild okra from Eastern Ghats of India. **Genet Resour Crop Evol** , <https://doi.org/10.1007/s10722-017-0590-5>
27. Suveditha S, Bharathi LK, Krishna Reddy M (2017) First report of Cucurbit aphid-borne yellows virus infecting bitter gourd (*Momordica charantia*) and teasel gourd (*Momordica subangulata* subsp. *renigera*) in India. **New Disease Reports**, 36: 7. <http://dx.doi.org/10.5197/j.2044-0588.2017.036.007>
28. KJ John, K Pradheep, MA Nizar, VA Nissar, MV Krishnaraj, M Latha, A Suma, LK Bharathi, R Asokan Nair, KV Bhat (2018) Taxonomy, Diversity and Distribution of the Genus *Cucumis* L. in India Indian Journal of Plant Genetic Resources, 78-88
29. K Joseph John, MV Krishnaraj, K Pradheep, LK Bharathi, A Suma, M Latha, SR Yadav, KV Bhat (2018) On the taxonomic status, occurrence and distribution of *Cucumis hystrix* Chakrav. and *Cucumis muriculatus* Chakrav.(Cucurbitaceae) in India. **Genetic Resources and Crop Evolution** 65 (6), 1687-1698

11. Number of Books/Book chapters (Add list): 15 (Please see Annexure-6)

1. **Bharathi LK** and Joseph John K (2013) *Momordica* genus in Asia - An Overview. p. 147. Springer Publishers, ISBN 978-81-322-1031-3
2. **Bharathi LK**, Srinivas P, Pitchaimuthu M, Singh HS (2014) Souvenir & Book of Abstracts. National Seminar-cum-Workshop on Strategies for Improvement, Enhancing, Productivity and Utilization of Cucurbits held during 8-10<sup>th</sup> August, 2014, Central Horticultural Experiment Station (ICAR-IIHR), Bhubaneswar, Odisha, 212pp.
3. **Bharathi LK** 2006. Ivy gourd. *In*: Underutilized and underexploited Horticultural Crops Vol.1, (ed. K.V.Peter), New India Publishing Agency, New Delhi. pp. 275-282
4. **Bharathi LK** 2006. Melothria. *In* Underutilized and underexploited Horticultural Crops Vol.1, (ed. K.V.Peter), New India Publishing Agency, New Delhi. pp. 283-287
5. **Bharathi LK**, Naik G, Singh HS, Dora DK 2006. Spine gourd. *In* Underutilized and underexploited Horticultural Crops Vol.1, (ed. K.V.Peter), New India Publishing Agency, New Delhi. pp. 275-282
6. Medhi RP, **Bharathi LK**, Venkatesh A, Damodaran V, Damodaran,T, Singh DR 2006. Evaluation of cassava varieties under island ecosystem. *In* Root and Tuber Crops in Nutrition, Food Security and Sustainable Environment (Eds. Naskar, S.K., M. Nedunchezhiyan, K. Rajasekhara Rao, P.S. Siva Kumar, R.C.Ray, R.S.Misra and A.Mukherjee), Regional center of CTCRI, Bhubaneswar. pp. 193-195
7. Medhi RP, Damodaran V, **Bharathi LK**, Damodaran T, Venkatesh,A, Singh DR 2006. Nutrition studies on intercropping of elephant foot yam in coconut garden. *In* Root and Tuber Crops in Nutrition, Food Security and Sustainable Environment (Eds. Naskar, S.K., M. Nedunchezhiyan, K.Rajasekhara Rao, P.S. Siva Kumar, R.C.Ray, R.S.Misra and A.Mukherjee), Regional center of CTCRI, Bhubaneswar. pp. 181-183
8. Joseph JK, **Bharathi LK** 2008. Sweet Gourd (*Momordica cochinchinensis* (Lour) Spreng). *In* Underutilized and underexploited Horticultural Crops Vol. 4, (ed. K.V. Peter), New India Publishing Agency, New Delhi. pp. 185-191
9. Behera TK, Behera S, **Bharathi LK**, Joseph JK, Philipp W Simon, Staub JE 2010. Bitter gourd: Botany, Horticulture, Breeding. *In* Horticultural Reviews Vol. 37 (ed. Jules Janick, Wiley-Blackwell, pp. 101-141

10. Behera TK, Joseph JK, **Bharathi LK**, Karuppaiyan R 2011. *Momordica*. In: Wild Crop Relatives: Genomic and Breeding Resources (ed. Kole, C.), Springer, Netherlands. ISBN 978-3-642-20449-4, pp. 217-246
  11. **Bharathi LK**, Behera TK, Sureja AK, Joseph JK, Wehner TC (2013) Snake Gourd and Pointed Gourd: Botany and Horticulture. In: Horticultural Reviews, Volume 41 Janick, Jules (ed.) ISBN 978-1-118-70737-1 - John Wiley & Sons
  12. Singh S, **Bharathi LK** (2016) Cultivation and bioprospecting of perennial cucurbits. Pp. 95-112. In: Handbook of cucurbits: Growth, cultural practices, and physiology (ed. Mohammad Pessarakli), CRC press. ISBN: 978-1-4822-3458-9, pp-95-112
  13. Dhillon NPS, Supannika S, Singh SP, Masud MAT, Prashant Kumar, Bharathi LK, Halit Yetişir, Rukui Huang, Doan Xuan Canh, James D. Mc Creight (2016) **Genetic resources of minor cucurbits**. Pp. 1-18 In [Plant Genetics and Genomics: Crops and Models](#). ISSN 2363-9601. DOI 10.1007/7397\_2016\_24
  14. Singh S, **Bharathi LK** (2016) Cultivation and bioprospecting of perennial cucurbits. Pp. 95-112. In: Handbook of cucurbits: Growth, cultural practices, and physiology (ed. Mohammad Pessarakli), CRC press. ISBN: 978-1-4822-3458-9
  15. Singh HS, Srinivas P and **Bharathi LK** (2016) Current status and strategy of improving horticultural productivity in Eastern India. In: Agricultural Technology Application: For Enhancing Productivity (eds.) Singh A.K., De H.K. and Mondal S.K. Narendra publishing House, Delhi-06, ISBN : 9789384337841. pp 119-146
12. Number of Technical Bulletins (Add list): 6 (Please see Annexure-7)
1. Srinivas P, **Bharathi LK**, Mandal S, Singh HS 2012. *Pushti Nirapatta o aay vriddhi payin gharabadi (Odia)*. (Extension bulletin). NAIP-CHES, Bhubaneswar.
  2. Srinivas P, **Bharathi LK**, Mandal S, Singh HS 2012. *Vaigyanik paddhati re potal chas(Odia)*. (Extension folder). NAIP-CHES, Bhubaneswar.
  3. **Bharathi LK**, Singh HS, Srinivas P, Mandal S 2013. Scientific production technology for teasel gourd. NAIP-CHES Bulletin no. CHES/EF-1
  4. **Bharathi LK**, Singh HS, Srinivas P, Mandal S 2013. Scientific production technology for ivy gourd in Odisha. NAIP-CHES Bulletin no. CHES/EF-2
  5. **Bharathi LK**, Singh HS, Srinivas P, Mandal S 2013. Scientific production technology for pointed gourd in Odisha. NAIP-CHES Bulletin no. CHES/EF-2

6. Singh HS, Kundan Kishore, **Bharathi LK**, Mandal S, Srinivas P, Samant D, Sangeetha G (2014) Technologies of CHES (IIHR)-A Glimpse

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

14. Technologies developed (Add list and give a brief description): 7 (Please see Annexure-8)

### **Ivy gourd**

Arka Neelachal Kunki: A dual purpose variety (salad and cooked vegetable). An early variety, first harvesting starts from 45-50 days. Fruits are extra long (8.39 cm), cylindrical weighing around 20g. Tolerant to Downey Mildew. Yield - 15.14 t/ha ; 27 % increase over local check.

Arka Neelachal Sabuja: Plant starts flowering from 35-40 days after planting and give marketable yield upto 10 months. Fruits are dark green with fractured stripe and conical in shape giving desi type appearance. Tolerant to Thrips and mites. Yield – 23.6 t/ha; 98 % increase over the check.

### **Pointed gourd**

Arka Neelachal Kirti: Plant starts flowering from 55-60 days after planting. Fruits are spindle shaped, dark green colour with 3-4 fragmented stripes of cream colour. Fruits are medium sized (10.45 x 3.5 cm) weighing around 40-45 g. Tolerant to powdery mildew and Fusarium wilt. Yield 14.76 t/ha; 7% increase over local check.

### **Teasle gourd**

Arka Neelachal Gourav: Fruits are attractive, uniform lush green, round oval shaped with soft seeded. Tolerant to Downey Mildew and Anthracnose. Longer harvesting period (5-6 months). High yield (18-20 t/ha); 10% increase over local check.

### **Brinjal**

Arka Neelachal Shyama: Plants are spreading. Early variety (65-70 DAS). Fruits are round light green coloured masked with light pink colour medium sized (10.45 x 3.5 cm) weighing around 40-45 g. Yield - 34 t/ha ; 16.36 % increase over check Utkal Maduri

### **Chilli**

Arka Neelachal Prabha: Mid season variety and fruits mature in 65-75 days. The plant has upright growth habit with heavy fruiting potential. Fruits are medium long (5-6 cm), dark green at immature stage and crimson red at ripening. The green fruit yield of the variety is 10.92 t/ha; 11.25% increase over check.

***Momordica suboica***

Arka Neelachal Shanti: High propagation efficiency. Short dormany (3 months). High natural fruit set (71%). Longer harvesting period (5-6 months). Tolerant to Downey Mildew and fruit fly. High yield – 25.88 t/ha; 30% increase over female parent and 240% increase over male parent.

15. Patents/Copyrights obtained (Add list and give a brief description): 0 (Please see Annexure-9)

16. Any other information: