

Dr. Beena Thomas

Assistant Professor,

Dept. of Plant Breeding & Genetics

College of Agriculture, Vellayani

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Summary

Research areas of interest include crop improvement in ornamental crops especially, orchids, gladiolus and anthurium, vegetables, pulses, and plant tissue culture. Teaching genetics and plant breeding courses for UG, PG, Ph.D. and diploma students of Kerala Agricultural University. Currently guides PG and Ph.D. students as major advisor, in breeding of orchids, gladiolus, anthurium, red gram, tomato and yard long bean. Experience in plant tissue culture. Resource person in trainings and seminars on topics related to commercial cultivation of ornamental crops and gardening.

Research Highlights

- Morpho-molecular characterization of commercially important orchids
- Protocol development for embryo culture of orchids and micropropagation of commercially important crops
- Developing water stress tolerant varieties in vegetable crops such as tomato and cowpea

Experience

Joined Kerala Agricultural University as Assistant Professor in the year 2011

Education

- Graduated in Agricultural Science from Kerala Agricultural University (1994)
 - Post Graduation in Plant Breeding & Genetics from Kerala Agricultural University (1997)
 - Ph.D in Plant Breeding & Genetics from Kerala Agricultural University (2008)
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Area of Specialization

Crop Improvement and Commercial cultivation of ornamental crops

Awards & Recognitions

1. **Best Poster Award** in the 21st Kerala Science Congress, held at Kollam, Kerala, from 28-31 January, 2009 for the poster entitled "**Intra and intergeneric compatibility studies in monopodial orchids**".
2. Award for research work (**National**)- **Best Poster Award** (II) in the National Conference on medicinal orchids: Sustainable use and benefit sharing for rural and tribal communities, Abstracts, Chandigarh, 2011.

3. Award for research work (**International**)- **Best Poster Award** in The International Seminar on Emerging Threats and Challenges to Biodiversity: Policy Framework for Sustainable Management, Tirupati, 2011.
4. **Best Oral Presentation Award (International Conference)** on Biosciences: State of the Art- Advancements Conducted by Society for Education and Scientific Research, Kumarakom, 2014
5. **Best oral presentation award** in virtual National Conference on ‘Underutilized Horticultural Genetic Resources: Conservation and Utilization (NCUHGR-2022), (as co-author), organized by Andaman Science Association in collaboration with ICAR-CIARI, Port Blair, during June 3-4,2022

Research Projects

Ongoing

1. Development of novel hybrids of orchids and rapid multiplication through micropropagation, Funded by the Planning Board, Government of Kerala
 2. Standardization of Tissue Culture Media for the Micropropagation of Traditional and Dwarf Red Bananas”, Funded by the Planning Board, Government of Kerala
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Completed

1. Network Project on development of hybrid vegetables and hi-tech production technologies, Funded by the Planning Board, Government of Kerala
 2. Establishment of a small nursery of ornamental crops, State Horticultural Mission
 3. Evaluation of Seedling Variability in selected varieties of *Anthurium andreanum*, Funded by the Planning Board, Government of Kerala
 4. Genetic Improvement of Commercially Important Anthuriums, Funded by the Planning Board, Government of Kerala
 5. Development and Evaluation of Anthurium Hybrids, Funded by the Planning Board, Government of Kerala
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Publications

Journal Articles

1. **Beena Thomas** and Sreekumar. S.G.. 2001. **Combining ability for biological nitrogen fixation traits and yield components in blackgram (*Vigna mungo* (L.) Hepper).** *Journal of Tropical Agriculture*,39:93-97
2. **Beena Thomas**, Arya.K., Divya Krishnan and Sreekumar. S.G.. 2007. **Heterosis for biological nitrogen fixation traits and yield components in blackgram (*Vigna mungo* (L.) Hepper).** *Legume Research*, 31:260-264
3. **Beena Thomas** and Lekha Rani, C. 2008. **Stigma and pollen parameters in selected monopodial orchid hybrids and species.** *Journal of Orchid Society of India*,22:31-34.
4. **Beena Thomas** and Lekha Rani, C.2008. **Assessment of floral characters in commercial varieties of monopodial orchids.** *Journal of Ornamental Horticulture*, 11:15-20.

5. **Beena Thomas** and Lekha Rani, C. 2009. **Analysis of vegetative and floral. traits in monopodial orchids.** *Journal of Orchid Society of India.* pp 79-86
6. **Beena Thomas**, Lekha Rani.C. and Asha T. Mathew. 2011. **Molecular Characterization in monopodial Orchid Hybrids.** *Indian Journal of Ornamental Horticulture* :26-34.
7. **Beena Thomas** and Lekha Rani. C. 2012. **Tissue culture media: Selection and refinement for a monopodial orchid hybrid.** *Journal of Orchid Society of India* 26:101-104.
8. Srinivas, B., **Thomas, B.**, Sathishkumar, S., and Gopi, R. 2016.**Variability and heritability estimates in Bird Chilli (*Capsicum frutescens* L.).** *Environ.Ecol.*35 (IA):248-252.
9. Srinivas, B.,**Thomas, B.**,and Rajashekar,P.2016. **Character association and path analysis studies in Bird Chilli (*Capsicum frutescens* L.).***Res. J. Agric. Sci.* 7(2) :355-360.
10. Sathishkumar, S., **Thomas, B.**, and Gopi, R. 2016. **Intra-varietal variability in Komadan Coconut (*Cocos nucifera* L.) Palms.** *Adv. Life Sci.* 5(12):5074-5078. 3.56.
11. Gopi, R., **Thomas, B.**, and Sathishkumar, S. 2016. **Genetic variability among diverse genotypes of *Anthurium andreanum* Linden.** *Adv. Life Sci.* 5(12):4886-4888. 3.56.
12. Thouseem N., **Thomas, B.** and Elizabeth, N. 2018. **Genetic Parameters in Seed Yield Components of Cowpea (*Vigna unguiculata* (L.) Walp.).** *Int J. Curr. Microbiol. App. Sci.* 7(2):2268-2274.
13. Elizabeth, N., **Thomas, B.** and Thouseem, N. 2018.**Evaluation of Tomato (*Solanum lycopersicum* L.) Genotypes under Water Stress Based on Yield and Physiological Parameters.** *Int J. Curr. Microbiol. App. Sci.* 7(1):214-225.
14. Anand, S., **Thomas, B.** and Sarma, G. R. 2019. **Genetic variability analysis for selection of high yielding and superior *Anthurium andreanum* Linden hybrids.** *J. Pharmacognosy and Phytochemistry.* SP(2) : 507-509.
15. Rahana, S.N. and **Thomas, B.** 2020. **Screening yard long bean genotypes for drought tolerant traits under field and polyhouse condition.** *Plant Arch.*20:346-348.
16. **Beena Thomas**, Lekha Rani, C. and George, R.M. 2020. **Genetic variability studies in selected orchid genotypes.** *The J. Orchid Soc. India.*34:57-60.
17. George,R.M., **Thomas, B.**, and Unni, M.A. 2020. **Genetic variability studies in Phalaenopsis orchids.** *J. Pharmacogn. Phytochem.*9(6):377-379.
18. Smera G. Santosh, **Beena Thomas**, Anand S. and Sarada S. 2020.**Studies on estimation of genetic parameters of anthurium (*Anthurium andreanum* Linden ex Andre) genotypes.** *Journal of Ornamental Horticulture*, 23 (2) :121-123.
19. Chippy A. K., **Thomas,B.** and Amrutha Unni, M. 2021. **Assessment of Tomato (*Solanum lycopersicum*) Genotypes for yield and yield contributing characters and hybrid development.** *Int.J.Curr.Microbiol.App.Sci.* 10(01): 1599-1608.
20. Chippy A K, **Thomas,B.**, Rahana S N and Amrutha Unni, M. 2021.**Determination of fruit quality parameters of ten tomato (*Solanum lycopersicum*) genotypes and their Hybrids.** *Journal of Pharmacognosy and Phytochemistry.* 10(1): 1621-1624.

21. Unni, M A, **Thomas, B.** and Chippy, A.K. 2021. **Review article on molecular breeding in *Dendrobium* orchids.** *Int. J. curr. Microbiol. App.Sci.* 10 (4):2319-7706
22. Priyanka Hulsure, **Beena Thomas, Arya K, Gayathri G,** Arya S Nair and Amritha Varanya. 2022. **Genetic analysis in grain cowpea (*Vigna unguiculata* (L.) Walp) for yield and quality** 2022. *The Pharma Innovation Journal*:11 (3):2394-2398.
23. **Beena Thomas,** Revathi B S, Sarada S and **Adheena Ram A.** 2022. **Genetic variability parameters of commercially superior *Anthurium andreanum* varieties and hybrids.** *The Pharma Innovation Journal*:11 (5):1988-1991.
24. Unni, M A, **Thomas, B.** George R M and Gopinath M P A. 2022. **Studies on genetic variability, heritability and genetic advance for the vegetative characters in *Dendrobium* orchids.** *The Pharma Innovation Journal*:11 (8):646- 648.
25. Revathi B S and **Beena Thomas.** 2022. **Role of polyploidy in orchid improvement.** *The Pharma Innovation Journal*:11 (6) :2394-2398.
26. Shahiba, A.M., Jayalekshmy, V.G., Sajeena, A., **Thomas, B.** and Chacko, A.2022. **Molecular characterization of Fusarium and screening of cowpea [*Vigna unguiculata* (L.) Walp.] germplasms against Fusarium wilt (*Fusarium oxysporum* f.sp. *Tracheiphilum*).** *Legume Research.* 10.18805/LR-5015.
27. Varghese, F., Sarada, S. and **Thomas B.** 2022.**Comparative performance of Yard long bean (*V. unguiculata* subsp. *Sesquipedalis* (L.) Verdcourt) Crosses for vegetative and yield characters under open field and rain shelter.** *Environment and Ecology* , 40 (3C)
28. Varghese, F., Sarada, S. and **Thomas B.** 2022.**Correlation studies in Yard long bean (*V. unguiculata* subsp. *Sesquipedalis* (L.) Verdcourt) Crosses under open field and rain shelter.** *Annals of Plant Soil and Research*, 24(4)
29. Chacko A., Jayalekshmy, V.G., Karthikeyan,K., **Thomas, B.,** Shanas, S., and Shahiba, A.M., 2023. **Gene Validation for Brown Plant Hopper Resistance in Rice Varieties Using SSR Markers,** *Int. J. Plant Soil Sci.* :35, (12), 1-8.
30. Reddy S.B., **Thomas B.,** Ankitha M.O., Anand S., and Jyothi, B.A. 2023. Association and path coefficient analysis among F2 segregating population of tomato (*Solanum lycopersicum* L.). *Int. J. Plant Soil Sci.*, 35 (18), pp. 656-662.
31. Reddy S.B., **Thomas B.,** Anand S., Ankitha M.O., and Jyothi, B.A. 2023. **Evaluation of genetic variability and Frequency Distribution in the F2 segregating population of tomato Cross Anagha x IIHR 2896.** *Biological Forum-An International Journal*, 15 (8): 111-115.

Books Published

Book published as a part of Azadi Ka Amrit Mahotsav, 2022

Dr. Beena Thomas, Amrutha Unni, and Ayana K. 2022. **Namukkorukkam Udhyanam**, Directorate of Extension, Kerala Agricultural University.

Other Publications (numbers)

Books	: 3
Book Chapter	: 1
Leaflets	: 4
Research Papers	: 31
Abstracts in proceedings	: 13
Popular Articles	: 24

Student Guidance (Major Advisor/ Advisory Committee member)

I. Research guidance as Major Advisor

M. Sc.

Within KAU: Completed: 11, Ongoing: 4

Outside KAU: Completed : 2

BSc.- M.Sc. Integrated Biotechnology: Completed: 2

Ph. D : Within KAU: Completed: 4, Ongoing : 3

II. Research guidance as Advisory committee member

1. M.Sc. (Ag.)- 10 completed, 3 ongoing

2. B.Sc.- M.Sc. Integrated Biotechnology- 1 completed

3. Ph.D (Ag.)- 9 completed, 4 ongoing

Other Institutional Responsibilities

1. Currently acting as student Advisor/faculty mentor to 10 Undergraduate students.

Membership in Professional Associations

1. The Indian Society of Genetics & Plant Breeding,
2. Indian Society of Ornamental Horticulture
3. The Orchid Society of India.