

**Dr. S. Bindu**

Technical Officer

Seed Bank, Conservation Biology Division

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**Personal Profile**

**Date of Birth** : 01.05.1973

**Residential Address** : Sreeragam  
Pacha, Paluvalli PO  
Nanniyode  
Thiruvananthapuram  
Kerala, India  
Pin: 695 562

**Official Address** : Jawaharlal Nehru Tropical Botanic Garden and Research  
Institute  
Pacha, Palode  
Thiruvananthapuram  
Kerala, India  
Pin: 695 562

**Spouse** : S.K. Jayakumar

**Son** : Sooraj J.B.

**Hobbies** : Drawing, painting, listening music, gardening

**Achievements:**

Dr P.D. Sethi Annual Award 2014 for the Best Research Paper in Pharmaceutical Analysis for the paper titled “Distribution of Reserpine in *Rauvolfia* species from India – HPTLC and LCMS Studies”, published in ‘Industrial Crops and Products’, Vol: 62, Year 2014, Page 430-436.

## Education

Degree/Diploma Certificate	Year	Class/Grade	University/Board/Institute
Doctorate	2016	Awarded	Manonmaniam Sundaranar University, Tamil Nadu
Master's degree or equivalent	2007	I Class	Annamalai University, Tamil Nadu
Bachelor's Degree	1993	I Class	Kerala University
School Leaving Certificate	1988	I Class	Board of Public Examinations, Kerala

## Work Experience:

**26.08.2000 – 03-09-2005                      Technical Officer Gr.I                      JNTBGRI**

**Main duties performed:** Seed Collection, Accessioning, Seed desiccation studies, seed viability tests, germination and storage, seedling studies.

**04-09-2005 – 03-09-2010                      Technical Officer Gr.II                      JNTBGRI**

**Main duties performed:** Seed Collection, Accessioning, Seed desiccation studies, seed viability tests, germination and storage, seedling studies.

**04-09-2010 – 03-09-2015                      Technical Officer Gr.III                      JNTBGRI**

**Main duties performed:** Seed Collection, Accessioning, Seed desiccation studies, seed viability tests, germination and storage, seedling studies, phytochemical extraction.

**04-09-2015 – Continuing                      Technical Officer Gr. IV                      JNTBGRI**

**Main duties performed:** Seed Collection, Accessioning, Seed desiccation studies, seed viability tests, germination and storage, seedling studies, reintroduction of RET-listed species.

**Skills:** Experience in seed collection, viability studies, viability tests, dormancy-breaking experiments, storage studies, morphological documentation, seedling study, phytochemical extraction methods.

**Project works:**

- 1. Carpology studies on five species of *Rauwolfia* – Co-investigator** (Plan fund project)
- 2. National Gene bank for Medicinal and Aromatic plants - Associate staff** (funded by Department of Bio-Technology).
- 3. Establishment of Seed bank, propagation and *ex-situ* conservation of endemic and threatened species of Western Ghats – Associate staff** (funded by Ministry of Environment & Forest funded by Ministry of Environment & Forest)
- 4. Studies on seed biology and nursery practices of *Coscinium fenestratum* and *ex-situ* conservation of the species through establishment of field gene bank and seed bank – Co-investigator** (funded by Kerala Forest Department).
- 5. Germplasm Collection, Characterization and Conservation of Select Medicinal Plants of Kerala State – Associate staff** (funded by National Medicinal Plant Board).
- 6. Establishment of seed bank and field gene bank of *Saraca asoca* (Roxb.) Wilde - a vulnerable medicinal species of the Indian Subcontinent- Co-investigator** (funded by the Kerala Forest Department).
- 7. Establishment and Maintenance of JNTBGRI Seed Bank - Co-investigator** (Plan fund project).
- 8. Preparation of an illustrated bilingual field guide on medicinal fruits, seeds and their seedlings occurring in Kerala Forests –Co-investigator** (funded by Kerala Forest Department).
- 9. Seed Biology of Kerala Flora – Co-investigator** (Plan fund project).
- 10. Conservation of *Buchanania barberi*, a tree on the verge of extinction - Co-investigator** (The Mohamed bin Zayed species conservation fund)

**11. Ex-situ conservation of five critically endangered plants of the western ghats, India. – Co-investigator** (funded by BGCI)

**12. Studies on conservation biological aspects of selected flowering plant wealth of Kerala** (Plan fund project)

#### **Publications:**

1. **Bindu, S.**, Chitra, C.R and Anilkumar, C., 2007 Polyembryony in *Rauvolfia serpentina* (L.) Benth.Ex.Kurtz “In Indian Forester” Vol.133 (12): 1711-1714.
2. Anilkumar, C, C.R.Chitra, **S. Bindu**, and P. Padmesh 2008 Seed germination and storage studies in *Ficus krishnae* C. DC. Indian Journal of Plant Physiology. 13(1) N.S. pp 66-72.
3. Chitra, C.R., Anilkumar, C., and **Bindu, S.**, 2010, “Germination and storage studies on *Oroxylum indicum* (L.) Vent. Seeds” Journal of Non Timber Forest products, Vol.17 (2):179-181.
4. Anilkumar, C., Chitra, C.R., **Bindu, S.**, Prajith, V. and Mathew, P.J.2010 ‘Dormancy and germination of *Coscinium fenestratum* (Gaertn.) Colebr seeds’ Seed Science and Technology, 38,585-594.
5. Anil Kumar C, **Bindu, S.**, Chitra C R and Mathew, P J. 2011. Taxonomic significance of fruit and seed morphology in identification of south Indian *Rauvolfia* L. (Apocynaceae). *Rheedea*. Vol.21 (2), 160-166.
6. Anilkumar C, Chris Ipe, **Bindu, S.**, Chitra C. R, Mathew P. J and Krishnan P. N.,2012 Seed segregation among five South Indian *Rauvolfia* L. species aided by electrophoretic protein profiling. Current Science, (scientific correspondence) Vol.103, no.2, 25<sup>th</sup> July 2012, 138-140.
7. **Bindu, S.**, K.B. Rameshkumar, Brijesh Kumar, Awantika Singh and C. Anilkumar, 2014. Distribution of reserpine in *Rauvolfia* species from India – HPTLC and LC-MS studies. Industrial Crops and Products, 62: 430-436. (**Impact factor: 3.5**)
8. **Bindu, S.** and C. Anilkumar, 2014. Comparative carpology of south Indian *Rauvolfia* species. Phytomorphology, 64 (3&4): 89-99.
9. Kumar, S., Bajpai, V., Singh, A., **Bindu, S.**, Srivastava, M., Rameshkumar, K.B. and Kumar, B., 2015. Rapid fingerprinting of *Rauvolfia* species using direct analysis in real time mass spectrometry combined with principal component analysis for their discrimination. Analytical Methods, 7(14): 6021-6026. DOI: 1039/C5AY01249J (impact factor: 1.821).

10. Santhosh Kumar, E.S., **Bindu, S.**, Anilkumar C. and Suchithra G. Krishnan, 2016. Reinstatement of *Rauvolfia membranifolia* Kerr and a note on *R. micrantha* Hook. f. (Apocynaceae). *NeBio*, 7(4): 166-169. (impact 0.998)
11. Anilkumar, C., Chitra, C.R., **Bindu, S.** and Rajkumar, G., 2016. Seed storage behavior of *Tinospora cordifolia*. *Seed Research*, 44(2): 102-106.
12. Ranjith layola MR, Chitra CR, **Bindu S**, Mathew Dan and Anilkumar C, 2018. Investigation on Longevity of Piper barberi seeds. *Seed research*, 46(1): 81-83.
13. **Bindu S.** and Anilkumar C., 2019. Seed desiccation tolerance of South Indian *Rauvolfia* species. *International Journal of Science, Environment and Technology*, 8(2): 264-277. (global impact factor: 0.765,
14. Chitra, C.R., **Bindu, S.**, Shareef, S.M., Hima, V.S. and Anilkumar, C., 2019. An account of fruit and seed morphology, germination and seedling growth of four species of *Salacia* L. *Journal of Non-Timber Forest Products*, 26(3): 145-150.
15. Anurag Dhyani, Abinlal K.C. and **Bindu S.**, 2021. *Santalum album* at a glance. *Nursery Today* (January):100-102.
16. **Bindu S** and Anilkumar C, 2021. Viability and longevity of *Antidesma montanum* Blume seeds. *International Journal of Research and Analytical Reviews*, 8(2): 553-559.
17. Dhyani A., **Bindu S**, Abinlal KC, and Anilkumar C, 2022. Reintroduction of *Buchanania barberi*, a critically endangered tree endemic to the south Western Ghats of Kerala, India. *Plants People Planet*: 1-6. DOI: 10.1002/ppp3.10334. ISSN :2572-2611. (Impact factor: 5.695).
18. Anilkumar C., Chitra CR, **Bindu S.**, Sabu T. and Jothish PS., 2023. Genetic Diversity of *Ficus krishnae* C. DC. and *Ficus benghalensis* L. *International Journal of Current Research*, 15(02): 23805-23808. DOI: <https://doi.org/10.24941/ijcr.44859.02.2023>
19. **Bindu S.**, Anilkumar C., 2023. *Sarpagandhi*. Aranyam, Published by Forestry Information Bureau, Kerala Forest Department.

## Seminar Papers:

1. Anilkumar, C. Prajith, T.M. Chitra, C.R. and **Bindu, S.** (2011). Conservation of *Saraca asoca* (Roxb.) W.J. de Wilde through standardization of seed desiccation protocols. *XIII Annual Conference of Indian Association for Angiosperm Taxonomy and National Seminar on "Biodiversity conservation and climate change (BCCC-11)"* [abstract], pp.45-46, CSIR-IMMT, Bhubaneswar, Odisha, India.
2. Anilkumkar C, Chitra C.R, **Bindu, S.** and Abdul Jabbar, 2014. An account on some wild edible underutilized fruits of Kerala, in the National Symposium on Underutilized and wild edible plants of India- "Future crops" held at University of Kerala, Karyavattom, Trivandrum on December 10-11,.
3. Rameshkumar, K.B. and **S. Bindu**, Awantika Singh and Brijesh Kumar, 2014. Distribution of indole alkaloids in Indian *Rauvolfia* species. Joint Malaysia-UK Symposium on Natural Product Chemistry and Drug Discovery, held at International Medical University, Kuala Lumpur, Malaysia, on 13 December 2014.
4. Chitra, C.R, **Bindu, S.**, Prajith, T.M, Maya.P.V. and Anil kumar. C, 2014. "Phenology and Morpho-physiology of Fruits and seeds of Dasamoola plants." 26<sup>th</sup> Kerala Science congress, 28-31 January 2014, Wayanad pp 215-217.
5. Anilkumkar C, Chitra C.R, **Bindu, S.**, Maya P.V, Prajith T.M and Joemon Jacob, 2012. "An account on some endemic seeds of southern Western Ghats." First National Biodiversity Congress NBC 2012, 27-30.
6. **Bindu, S.** and C. Anilkumar, 2013. Accessional variations in *Rauvolfia serpentina* seeds. 3<sup>rd</sup> International Science Congress ISC-2013, 8-9 Dec, 2013. International Science Congress Association, pp: 84-85.
7. Anilkumar, C., Chitra, C.R., **Bindu, S.**, Prajith, V. and Mathew, P. J., (2008). Storage of seeds improves germination of a rare, herbal species, *Coscinium fenestratum*. *Golden jubilee conference on "Challenges and emerging strategies of improving plant productivity"* [abstract], pp.12 -14, IARI, New Delhi, India.).
8. Anilkumar, C., Chitra, C.R., **Bindu, S.**, Prajith, V. and Mathew, P. J., (2009) "Seed biological studies on a rare herbal species- *Coscinium fenestratum* (Gaertn.) Colebr."

Proceedings of the UGC Sponsored National Conference on Environmental Challenges and Sustainable Development, held at Sir Syed College, Taliparamba, Kannur. Pp 63-65.

9. Anilkumar, C., Chitra, C.R., **Bindu, S.**, Prajith, V., Deepu Sivadas and Mohamed Shijad. (2010) “*Ex-Situ* Conservation of Selected Endemic Species through Seed Banking”. Poster presentation at Golden Jubilee National Symposium On Plant Diversity Utilization and Management, May 27-29, 2010 at Department of Botany, University of Kerala, Kariavattom, TVM.
10. Anil kumar. C, Chitra, C.R, **Bindu, S.**, and Laiju Mathew 2007. “Seed studies on 12 Southern Western Ghats species.” 19<sup>th</sup> Kerala Science congress, 29-31 January 2007, Kannur, pp 215-217.
11. **Bindu, S.**, C.R.Chitra, J.Santhosh Kumar, C.Anil Kumar and P.N.Krishnan 2004 Comparative carpology of peninsular Indian *Rauvolfia* L. species. National seminar on new frontiers in plant taxonomy and bio diversity conservation.pp. 59-60.
12. **Bindu S** and Anilkumar. C., 2012. Conservation of *Rauvolfia micrantha* Hook. f., a rare and endemic medicinal plant of southern Western Ghats. Presented at “*Botanica 2012*” International Seminar on “World Bioheritage Concerns over Climate change, with a special reference top Ethnic vegetables”.organized by The Department of Botany, Sree Narayana College, Chempazhanthy, on September 7<sup>th</sup>-8<sup>th</sup>, 2012, at Sree Narayana College, Chempazhanthy. Abstract-page no.80-81.
13. **Bindu, S.** and Anilkumar, C., 2016. Effect of pre-treatments in the seed germination of *Rauvolfia* species. 28<sup>th</sup> Kerala Science Congress, *Extended Abstracts*, pp: 1844-1848. 28-30 January, 2016, University of Calicut, Thenhipalam, Malappuram.
14. Ranjith Layola, M.R., Anilkumar C, **Bindu, S.** and Mathew Dan, 2017. Seed studies of selected RET medicinal plants of southern Western Ghats. 12<sup>th</sup> J&K Science Congress held at Jammu University on 2-4 March 2017.

#### **Chapter in Book:**

1. Anilkumar, C., Chitra, C.R., **Bindu, S.**, Maya, P.V., Prajith, T.M. and Joemon J., 2015. An Account on Some Endemic Seeds of Southern Western Ghats, *In: Biodiversity Conservation – Challenges for the Future* [Laladhas, K.P., Oommen V. Oommen and Sudhakaran P.R. (Eds.)], Chapter 10, p: 113-119.

2. Anurag Dhyani, K.C. Abinlal, **S. Bindu**, Vincy K. Wilson, S. Suresh, E.S. Santhosh Kumar, C. Anilkumar, Megan Barstow, 2021. *Buchanania barberi*, a Tree on the Edge of Extinction, Reference Module in Earth Systems and Environmental Sciences, Elsevier, ISBN 9780124095489, <https://doi.org/10.1016/B978-0-12-821139-7.00125-2>.
3. Dhyani, A., Abinlal, K.C., Bindu, S., Wilson, V.K., Suresh, S., Kumar, E.S.S., Anilkumar, C., Barstow, M., 2022. *Buchanania barberi*, a Tree on the Edge of Extinction. In: DellaSala, D.A., Goldstein, M.I. (Eds.), *Imperiled: The Encyclopedia of Conservation*, vol. 1. Elsevier, pp. 744–750. <https://dx.doi.org/10.1016/B978-0-12-821139-7.00125-2>.

**Book:**

*Bilingual Field Guide to Selected Wild Medicinal Fruits, Seeds and Seedlings of Kerala*

**Other Publications**

- i. Index Seminum, 2003.
- ii. Poster on ‘Conservation of *Buchanania barberi*, a tree on the verge of extinction.

**Hobbies:** Interest in drawing, painting and gardening

**Declaration:**

I hereby declare that the above given information are true to the best of my knowledge and belief.

Date: 30/10/2023

Yours faithfully,

(Bindu S.)