

CURRICULUM VITAE

1. Name : **Dr. S.CATHARIN SARA**

2. Mailing Address : Associate Professor and Head,
PG and Research Department of Botany,
Holy Cross College (Autonomous)
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Residence : No. 10 Catharin Bhavan
Pillaiyarkoil Street
Sanjeevi Nagar
Tiruchirappalli – 620 002.



3. Date of Birth & Gender : 24.11.1972, Female AGE- (51)

4. Educational Qualifications (**Starting from Graduation onwards**):

Degree	Institution	Year of Passing	Percentage of Marks	Class
Ph.D. (Plant Biotechnology)	Centre for Biodiversity and Biotechnology St. Xavier's College Palayamkottai Manonmaniam Sundaranar University Tirunelveli.	Apr 2002	Highly Commended	
M. Phil. Botany	St. Joseph's College (Autonomous) Tiruchirappalli Bharathidasan University Tiruchirappalli	Mar 1997	79.4	First
M. Sc. Botany	St. Xavier's College (Autonomous) Palayamkottai Manonmaniam Sundaranar University, Tirunelveli.	Apr 1995	71.0	First
B. Sc. Botany	Sarah Tucker College Palayamkottai Manonmaniam Sundaranar University Tirunelveli.	Apr 1993	73.0	First

Title of the Ph.D Thesis: **Conservation of Selected Rare and Endangered Ferns of the Western Ghats through Micropropagation and Restoration.**

5. AWARDS RECEIVED

“**YOUNG SCIENTIST AWARD**” at National Conference held at St Joseph’s college, Bangalore on 1-2nd February 2008.

b. “**OUTSTANDING WOMAN IN SCIENCE AWARD**” on Fifth International Women’s Day award function by Venus International Foundation 7th March 2020.

c. “**SR.DONA AWARD**” Special Recognition for faculty of science for Research by Holy Cross College (Autonomous), 26th March 2021.

6. POSITIONS HELD

1. Head , Botany Department from 2021 onwards
2. Core Committee member – CICRSD, ICARE Award Team and UG STRIDE – Research multidisciplinary team 2019 – 2020
3. Core Committee member – NAAC – Student support 2018 – 2020
4. Core Committee member – NIRF Ranking, ICT, NAAC – Research, 2017 – 2019
5. Core committee member – RESCAPES – 2004 to 2012

7. PROGRAMMES ORGANIZED

1. National Seminar on “Phytomedicine and Nanomaterials in Plant Sciences” - December 2022.
2. National Level Faculty Development on “Reimagining Plant Sciences for Sustainable Future- Opportunities and Challenges” 2nd to 6th August 2021.
3. Extension : Organized and Conducted Mushroom cultivation for Self help groups and community college students - 2014-15
4. Extension : Developed curriculum for students - report writing and evaluation of the extension activity in the form of manual to document the village visits by students and impact of the work in the villages and villagers. – 2005-2012
5. Extension : Organized and conducted Arts and Science Exhibition “ Kalangium” for the rural school students and panchayat level villages (14 villages) - 2009-2010
6. Extension : Organized and Conducted Desilting programmes in 3 villages in collaboration with Block development Office Mannachanallur and village people with students – 2006- 2008

8. TRAININGS CONDUCTED

1. Hands on training on Mushroom cultivation for certificate courses conducted during the years 2018 to 2022
2. Hands on training on Mushroom cultivation for Botany and other students under star college scheme from 2014 to 2017.
3. 15 days Hands on Trainings for Self help group members on Mushroom cultivation trainings 2010-2014
4. Orientation for self help womenfolk about Azolla cultivation, Panchakavya and vermicomposting for 15 villages- 2006- 2008.

9. BOOK CHAPTERS :

1. Dr.S.Catharin Sara and R.Gnana Deepa Ruby, (2022). Book :Ferns- Biotechnology, Propagation, Medicinal Uses and Environmental Regulation. **Editors** : Johnson Marimuthu, Helena Fernandez, Ashwani Kumar and ShibilaThangaiah- **Springer- ebook**- ISBN 978-981-16-6170-9, <https://doi.org/10.1007/978-981-16-6170-9>, March 2022.
2. Dr.S.Catharin Sara, Preethi.R. , Swathi.K and Basheera (2023). *Book : Biodiversity of Western Ghats Chapter title : In-vitro studies on PGR treated gametophytes of Pteris vittata (L.)*. **Editors** : Silvy Mathew, Jisha.K, Sheeja T.Tharakan, ISBN: 978-81-960780-0-3, February 2023

10.DETAILS OF PROFESSIONAL TRAINING AND RESEARCH EXPERIENCE

AREA OF SPECIALISATION: Fern tissue culture and phytochemistry

- Raising rare ferns through spore and tissue culture.
- Inducing and culturing apogamous and aposporous plantlets
- Germplasm storage by encapsulation of gametophytes (synthetic seeds)
- Isolation and quantification of DNA from gametophytes.
- Phytochemical, antioxidant and nanotechnology studies of fern species.

RESEARCH EXPERIENCE:

Junior Project Fellow (JPF) in a project entitled

“Conservation through Micropropagation and restoration of Selected rare and endangered ferns of Western Ghats - South India” at Centre for Biodiversity and Biotechnology, St, Xavier’s College (Autonomous), Palayamkottai.

20 years of Research Experience on Fern Tissue Culture, Phytochemistry, and Nano technology studies

RESEARCH GUIDESHIP:

- PH.D - Completed 6 Ph.D candidates, Guiding 5 Ph.D students,
- M.PHIL - Completed 5 M.Phil students,
- M.Sc - Completed 20 M.Sc students projects
- B.Sc - 8 UG group projects.

A. LIST OF PH.D. SCHOLARS – COMPLETED PH.D

No.	Ph.D Scholars	Year and Number of Registration	Title
1.	M.Revathi	Jan 2011. Ref.No. 30048/Jan 11/part time/ Dated 31.12.10, Confirmed and submitted – 17.11.14	Studies on phytochemical antimicrobial and Molecular characterization of <i>Marsilea minuta</i> .L
2.	R.Manonmani	Jan 2011. Ref.No.29211/Jan 11/part time/dated 29/12/10, Confirmed and synopsis submitted – 17.04.15.	Studies on sporophytic and gametophytic phases of an Important Medicinal fern <i>Actiniopteris radiata</i> (Swartz.) Link.
3.	R.Gnana Deepa Ruby	Jan 2013. Ref.No. 47544/Full time/ Jan 13. Dated 16.12.2012. Confirmed- 19.01.15.	Phytochemical, pharmacological, In vitro and antitumorous works of two important ferns.
4.	M.Gayathiri	Oct. 2014.Ref.No. 34837/Full time/Oct. 14 dated 14.10.14	Invitro life cycle, phyto chemical and molecular studies on two antidiabetic ferns.
5.	S.Sujatha	Oct. 2016. Ref.No. 29409/Ph.D.K1/Botany/Full - Time/October 2016	Phyto chemical, <i>in vitro</i> and <i>in silico</i> studies on an important fern.
6.	I.Ramyarose	Jan. 2017. Ref.No. 40333/Ph.D.K1/Botany/Full - Time/January 2017	Phyto chemical, molecular and <i>in silico</i> studies on ferns.

LIST OF PH.D. SCHOLARS – ONGOING

No.	Ph.D Scholars	Year and Number of Registration	Title
1	Mrs. Radhika. G	(Reg.No: BDU2020430554) Sep 2020	Cytological and Molecular studies of <i>Adiantum</i> Species from Western Ghats".
2.	Ms. Mariya Selvarani.S	(Reg.No: BDU2120432778984) March 2021	Structural Elucidation of Bioactive compounds and Anticancer studies of important medicinal ferns from Western Ghats.
3.	Ms.Swathi	Reg.No: BDU2110432779618) December 2021	Invitro, Phytochemical, pharmacological, insilico screening of anticancer bioactive compounds in <i>Marsilea minuta</i> . Linn
4.	Mrs.Basheera	Reg.No: BDU2310432780346 May 2023	Phytochemical, pharmacological and structural identification of bioactive compounds and insilico prediction of lead compounds in two ferns.
5.	Sr.Christy Mettilda	Reg.No: BDU2310432780576 Dec. 2023	In-vitro, phytochemical, pharmacological studies and prediction of bioactive compounds from an important heterosporous medicinal fern.

11. RESEARCH PROJECTS.

1. Investigators – Dr.S.Cathairn sara and Dr.Prema completed Major project– Establishment of mushroom cultivation unit and formulation of food additives and economic products for Commercialization. Funded by –**UGC STRIDE PROJECT 2017-2023**
2. **Investigator** – Completed Minor project - *Entrepreneurial training on Spirulina and Microgreens cultivation for undergraduate students* – funded by **United Board for Christian Higher Education in Asia – 2017-2018.**
3. **Investigator** – Completed Major Project - *Screening and quantification of phytochemicals and its antimicrobial activity of selected Anticancerous fern species*- funded by **UGC. 2012 -2015.Ref: No.F.No-41-432/2012(SR)**
4. **Investigator**, Completed Minor Research Project entitled “*Conservation of soil, water and natural resources by desilting in three villages of Mannachanallur block*” – sanctioned by **UGC – 2008 - 2009.MRP-2629/08 (UGC-SERO)Link No 2629.**
5. **Co-Investigator**, Completed Minor Research Project entitled “*Quantitative analysis of Nucleic acids on in vitro raised gametophytes of two fern species*” – Funded by **UGC - 2007-2009.MRP-2205/06 (UGC-SERO) Link No 2205.**
6. **Co Investigator** – Completed Major project entitled “*Design of Integrated Technology model for the Efficient management of Bio resources to improve Socio-economic and Ecological conditions of 15 villages of Mannachanallur block in Trichy District, TamilNadu*”- sanctioned by **RASHTRIYA VIGYAN EVAM PRODYOGIKI SANCHAR PARISHAD. Department of Science and Technology – 2008 - 11CO/FP/MDM05/2007.**

12. NATIONAL MEMBERSHIP

- Current Science, India
- Indian Fern Journal, India
- Life Member –Phytomorphology
- Doctoral Committee member – St.Joseph’sCollege , Tiruchirappalli
- Doctoral Committee member – Jamal Mohammed College, Tiruchirappalli.
- Doctoral Committee member – National College – Tiruchirappalli
- Scrutiny member – Bishop Heber College

13.PROFESSIONAL CAREER:

S.No	Post Held	Period		Name of the Institution / Organisation
		From	To	
1.	Junior research Fellow	1999 -	2001	Centre for Biodiversity and Biotechnology, St. Xavier ‘s college(Autonomous), Palayamkottai, Tirunelveli – 627 002

2.	Lecturer in Microbiology	2001 June- April 2002	ShrimathiIndiragandhi College Tiruchirappalli – 620 002.
3.	Lecturer in Biotechnology	2003 June – Nov. 2003	Holy Cross College(Autonomous) Tiruchirappalli – 620 002.
4.	Asst. Professor in Botany	2004 June- Feb 2023	Holy Cross College(Autonomous) Tiruchirappalli – 620 002.
5.	Associate Professor in Botany	2024 March- Till date	Holy Cross College(Autonomous) Tiruchirappalli – 620 002.

SUBJECTS FAMILIAR

- Taxonomy, Anatomy, Plant Diversity, Embryology and Cell Biology
- Cell and Plant tissue culture
- Mushroom and Azolla cultivation, Biofertilizers, Organic manure and Pesticide production
- Microbiology, Immunology and also Biotechnology topics
- Protoplast culture and cell fusion
- Agrobacterium-mediated Genetic transformation in plants
- Recombinant DNA technology.

13.PUBLICATIONS : LIST OF PUBLICATIONS (Journal Name, All The Author’s Name , Volume Number, Page Number And The Year Of Publication).

CITATION : 61

h-index- 5

i-10 index - 2

- Catharin sara.S**, M.Prema, K.Swathi.S.Priyadharshini Bai and C.Sivakami (2022). A review on Recent Prospectus and Status of Food based and ecofriendly Industrial Products from Mushrooms. *International Journal of Current Microbiology and Applied Science*. 11(03): 26-31.March 2022 UGC Care list.
- Ramya Roselin I, **Catharin Sara S**, Gayathiri M, Gnana Deepa Ruby. R & Sujatha S. **2020**. Evaluation of Brine Shrimp Lethality of *Adiantum latifolium* Lam. A Medicinal Fern. *Journal of Natural Remedies*; Vol-21; 8 (1):176-170. Impact Factor: 0.149
- Sujatha S, **Catharin Sara S**, Ramya Roselin I, Gayathiri M, Gnana Deepa Ruby R. Evaluation of brine shrimp lethality against methanolic extract of a medicinal fern *Phymatosorous scolopendria* (Burm. F.) Pic. Serm. *International Journal of Botany Studies*. **2021**; 6(1): 650-652. RJIF 5.12
- Sujatha S, **Catharin Sara S**, Roselin IR, Gayathiri M, Ruby RGD. Docking against Lung Cancer Protein and Drug-Likeliness of Bioactive Compounds from *Phymatosorus scolopendria* (Burm. f.) Pic. Serm. *International Journal of Pharmaceutical Sciences and Drug Research*. **(2020)**; 12 (5): 437-441.
- Sujatha S, **Catharin Sara S**, Gayathiri M, Roselin IR and Ruby RGD:

- Analysis of bioactive compounds present in methanolic extract of *Phymatosorus scolopendria* (Burm. F.) Pic. Serm. through gas chromatography and mass spectroscopy. *Int J Pharm Sci & Res* **2020**; 11(7): 3294-99. Impact Factor: 1.230
6. Ramya Roselin I, **Catharin Sara S**, Sujatha S, Gayathiri M. **2020**. Docking and Pharmacokinetics evaluation of phytochemical compounds of *Adiantum latifolium* against cancer pathway proteins. *Sambodhi*. 43 (4), 1-6.
 7. Ramya Roselin I, **Catharin Sara S**, Sujatha S, Gayathiri M & Gnana Deepa Ruby R. Isolation and Purification of Bioactive Compounds from the Medicinal Fern *Adiantum latifolium* Lam. *Int. J. Res. Ayurveda Pharm.* **2020**; 11(1):78-82. Impact Factor: 0.148
 8. Ramya Roselin I, **Catharin Sara S**, Sujatha S, Gayathiri M. *In-silico* evaluation of phytochemicals from *Adiantum latifolium* lam. As an anticancer agents through docking analysis, *International Journal of Botany Studies*. **2020**; 5(5): 287-292. Impact Factor: 0.162
 9. Gayathiri, M., I. Ramya Roselin, S. Sujatha and **Catharin Sara, S**. Gas chromatography and Mass spectroscopy analysis of bioactive compounds of *Adiantum caudatum* L. an anti-diabetic fern.. *Int. Res. J. Pharm.* **2019**;10(9):236-240 <http://dx.doi.org/10.7897/2230-8407.1009288>
 10. Gayathiri, M., I. Ramya Roselin, S. Sujatha and **Catharin Sara, S**. Analysis of Bioactive Compounds of *Hemionitis arifolia* (burm.) Moore. An anti-diabetic fern using gas chromatography and mass spectroscopy. *Int. Res. J. Pharm.* **2019**; 10(9):231-235 <http://dx.doi.org/10.7897/2230-8407.1009287>
 11. Sujatha S, Ramya Roselin, Gayathiri, M and **Catharin Sara, S**. Preliminary phytochemical screening and spectroscopic analysis of *Phymatosorus scolopendria* (Burm. F.) pic. serm. *Int. Res. J. Pharm.* **2018**;9(7):168-172 <http://dx.doi.org/10.7897/2230-8407.097143>
 12. Ramya Roselin, S. Sujatha, Gayathiri, M and **Catharin Sara, S**. Gas chromatography and mass spectroscopy analysis of bioactive compounds of *Adiantum latifolium* Lam. *Int. Res. J. Pharm.* **2018**;9(10): 125-130.
 13. Gayathiri, M., I. Ramya Roselin, S. Sujatha and **Catharin Sara, S**. **2018**. In Vitro Life Cycle, Micromorphological Studies and Reproductive Biology of an Anti-diabetic Fern. *Int.J.Curr.Microbiol.App.Sci*.7(07):3590-3603.doi: <https://doi.org/10.20546/ijcmas.2018.707.418>
 14. Revathi .M, **Catharin Sara .S** RP-HPLC Analysis of Flavonoids in *Marsilea Minuta* L *International Journal of Science and Research (IJSR)* ISSN: 2319-7064 Index Copernicus 296 Volume 7 Issue 11, November **2018**
 15. Manonmani R., **Catharin Sara S.**, Revathi M. and Basheera Begum A.**2018**. Phytochemical Profiling Of *Nigella Sativa* L. *World Journal of Pharmaceutical Research* Volume 7, Issue 19, 1376-1388. Research Article ISSN 2277– 7105
 16. Sujatha.S and **Catharin Sara.S.** (2016). *In vitro* life cycle and quantitative analysis of DNA on Sporophytic and Gametophytic tissues of *Phymatosorus scolopendria* (burm.f.) pic. ser. *Indian Fern Journal* Vol 33: 164-174.
 17. Lakshmi Priya P and S. **Catharin Sara** (2016). **Growth patterns of *Azolla pinnata*** R.Br. on artificial Medium under *In vitro* and *In vivo* conditions. *Journal on Scientific Transactions in*

18. Manonmani. R and **S. Catharin Sara. (2016)**. HPLC finger prints of phenolic compounds present in *Actiniopteris radiata* (swartz) link. *European journal of pharmaceutical and medical research.* 3(6), 435-438. May 2016 ISSN 2394-3211 SJIF Impact Factor 3.628
19. **Catharin Sara. S** and M.Rajathi D.Modilal. **2015**. Corporate Skills. *Academia and Society.* Vol.1. No.2. PP. 43-47. ISSN 2393-9419.
20. Manonmani. R. and **S.Catharin Sara 2015**. GC-MS Analysis of Bioactive Components of an important Medicinal fern *Actiniopteris radiata* (Swartz) Link. *World Journal of Pharmaceutical Research.* Vol.4 Issue 4 pp. 1860-1869. IF -5.045, ISSN 2277- 7105.
21. Gnana Deepa Ruby.R. Gayathiri .M and **S.Catharin Sara 2014**. *In vitro* ontogeny of *Pyrrosia lanceolata* L. Farewell. an important Medicinal fern. *International Journal of Research in Engineering and Biosciences.* Vol.2. Issue -6 pp. 879-883. ISSN- 2230- 8407. I. factor 0.53.
22. Gnana Deepa Ruby.R. and **S.Catharin Sara 2014**. Bioactive compounds and its importance in Pteridophytes. *International Journal of Research in Engineering and Bioscience.* Vol.2. Issue 6. pp – 64-78
23. Gayathiri.M. and **Catharin Sara.S. 2014**. *In vitro* studies on photomorphogenesis of Gametophytes of *Dryopteris dilatata* (Hoffm.) A. Gray in two different medium. *International Journal of Research in Engineering and Bioscience.* Vol. 2. Issue. 6, pp. 06-15.
24. Gnana Deepa Ruby.R. and **S.Catharin Sara 2014**. Preliminary phytochemical analysis of *Pyrrosia lanceolata* (L.) Farewell. *International Research Journal of Pharmacy.* 5 (12) pp. 879-883. ISSN- 2230-8407. I. factor 0.53.
25. Revathi. M and **S. Catharin Sara. (2014)** Phytochemical Studies on Leaves and Petiole extracts of *Marsilea minuta*, L. *International Journal of Science and Research* Volume 3 Issue 5, Impact Factor (2012): 3.358
26. Revathi. M and **S.Catharin Sara. (2014)**. Preliminary phytochemical analysis and antimicrobial activity of rhizome extract of *Marsilea minuta*. L. *International Journal of Scientific Research.* Vol. 3, Issue-2 Pp. 46 – 48.
27. R. Manonmani and **S. Catharin sara. (2014)** *In vitro* early ontogenic studies of *Actiniopteris radiate* (swartz) link. Under different medium *International journal of pharma and bio sciences int j pharm bio sci* 2014 jan; 5(1): (b) 483 - 491
28. Preethi .V and **S. Catharin Sara (2013)**. A study on primary and secondary metabolites of two important medicinal plant. *Journal on Scientific Transactions in Environment and Technovation* 6, (4) pp – 189- 195
29. Manonmani. R and **S.Catharin sara. (2013)** Preliminary phytochemical analysis Of *Actiniopteris radiata* (swartz) link. *International Research Journal of Pharmacy,* 4 (6) pp. 214-216
30. MaybaGnanaSuky. T. and **S. Catharin Sara (2013)**. Micromorphological studies and Quantitative analysis of nucleic acids on PGRs treated *in vitro* raised gametophytes of *Pityrogramma calomelanos* (l.) link *Indian Fern Journal* Vol 13 : 103-114.
31. Rameshwari.R, H. Abirami and **S.Catharin Sara (2013)**. Pharmacological actions of *Bacopa monnieri*: a Review. *Journal of Pharmacy and Industrial Research.* Vol – 03 (0 2) PP. 158 – 167.
32. **Catharin sara. S** and V.S.Manickam **2011**. Regeneration potential of gametophytes Of two rare ferns species – a method for *In situ* Conservation

of Pteridophytes. *International Journal of Biological technologies* (2011) 2 Special Issue.

33. **Catharin Sara .S .and V.S.Manickam 2010.**Micro propagation, Reproductive biology Life cycle of *Athyrium nigripes* Bl. T. Moore - A rare fern from Western Ghats. *Phytomorphology* 60 (3 &4) pp. 7-13.
34. **Catharin Sara. S. 2008** Impact of Medium and Hormones on *Pityrogramma calomelanos var calomelanos*(Linnaeus) Link Gametophytes cultured *in vitro*. *Biovistas: Future and Beyond*, Vol-4 No.1 pp. 99.
35. **Catharin Sara, S. and Manickam, V. S. 2007.** *In-vitro* Developmental Ontogeny and Life cycle of a Rare fern species *Thelypteris confluens*(Thunb.) Morton. *Indian Journal of Biotechnology Vol .6 July 2007 pp 372-380.*
36. **Catharin Sara, S. 2006.** *In vitro* propagation of three selected fern gametophytes. *The Journal of the Swamy Botanical Club* Cl. 23: 101-106.
37. **Catharin Sara, S. and Manickam, V. S. 2005.** *In vitro* propagation of the critically endangered fern *Cyathea crinite* (Hook). Copel. *Asian Jr. of Microbiol. Biotech. Env. Sc.* 3: 113-122.
38. **Catharin Sara, S., Manickam, V. S. and Antonisamy, R. 1998.** Regeneration in kinetin treated gametophytes of *Nephrolepis multiflora* (Roxb.) Jarret”, *Current Science*, 75: 503-508.
39. **Catharin Sara, S. and John De Britto, A. 1995.** “Impact of cement on *Phaseolus mungo* L.” *Journal of the IPHE India*, No. 3 & 4, pp.16-20

14. PAPERS PRESENTED AND ABSTRACTS PUBLISHED.

1. **Catharin sara. S.** Symmetry and Micromorphology of *in vitro* raised gametophytes of various ferns. **National level Conference** on Recent Innovation and Future Trends in Biology (RIFTB – 2014) National college, Trichy Sponsored by UGC and National College (Autonomous). In association with Society for Conservation of Nature (SOFCON), Tiruchirappalli during **24th and 25th July 2014.**
2. **Catharin Sara.S.** A study of Heavy metal treatment on gametophytes of *Pityrogramma calomelanos var. calomelanos* (Linn.) Link. Under *In vitro* cultures” UGC **National Seminar** on Climate change and environmental challenges at DST-FIST & JGC-SAP sponsored Dept. of Botany, Annamalai Univeristy during March 7th and 8th February **2009.**
3. **Catharin Sara. S.** Impact of Medium and Hormones on *Pityrogramma calomelanos var calomelanos* (Linnaeus) Link. Gametophytes cultured *in vitro*. **National Seminar** on ‘Recent trends in Plant Sciences sponsored by UGC and Bangalore University, at St.Joseph’s College, Bangalore 1st and 2nd February **2008.**
4. **Catharin Sara, S.** *Callus texture and morphogenesis on in vitro cultured gametophytes of Thelypteris confluens* Thunb. Morton “**National Seminar** on “New frontiers in Biological Sciences” Holy Cross College (Autonomous) Tiruchirappalli, 19 - 20 January **2007.**
5. **Catharin Sara, S.** Life cycle and effect of UV irradiation on the fern *Pityrogramma calomelanos var calomelanos* L (Link) under *in vitro*

- condition*. **National Seminar** on “Emerging Trends in Biological Sciences”, Shrimathi Indira Gandhi College, Tiruchirappalli, 9 - 10 October **2006**.
6. **Catharin Sara. S.** *In vitro propagation of three selected fern gametophytes*. **National seminar** on Advances in Plant Sciences, Bharathidasan University, 24 – 25 February **2006**
 7. **Catharin Sara, S.** and V.S.Manickam. *In vitro studies on Lifecycle, callus induction and morphogenetic development in Athyrium nigripes Bl.(T) Moore*. “**National Symposium** on Biotechnology for a Better future”, Laboratory of Applied Botany, St.Aloysius College, Mangalore, 15 -17 January **2004**.
 8. **Catharin Sara. S.** and V.S. Manickam. Poster presentation on “*Conservation of rare south Indian ferns through micropropagation*” **XVI International Botanical Congress**, Abstract Number: 5246, Poster No.-1322, St. Louis, USA, July **1999**.
 9. **Catharin Sara. S.**, Manickam, V.S, Antonisamy, R. and Vallinayakam.S., “*Conservation of rare and endangered ferns of Western Ghats through Micropropagation,*” **International Conference** on Conservation of Tropical Species, Communities and Ecosystems”, Tropical Botanical Garden and Research Institute, Thiruvananthapuram, 2 - 5 December **1998**.
 10. **Catharin Sara. S** and V.S.Manickam. “*Regeneration in kinetin treated gametophytes of Nephrolepis multiflora (Roxb.) Jarret*”, **National Symposium** on Biodiversity, Conservation and Evolution of Plants”, Allahabad University, 27 -29 November **1997**.

15. CONSULTANCY /RESOURCE PERSON

1. **Resource person - Special lecture on the title “ Skills in Ferns Identification and Conservation (SFIC- 23)** organized by PG and Research Department of Botany, The American College, Madurai- on 14th september 2023.
2. **Resource person – Special lecture on the title “Mushroom cultivation and Value additon”** by online mode (Cisco webex Ex link) on two week online training programme for **Women Entrepreneurship Development Programme (WEDP)** – conducted by DST (Govt of India), TNSCST and Jayaraj Annapackiam college for Women – Periyakulam. on 18.05.23.
3. **Resource person – Lead lecture on the title “Phytochemical, In – vitro, In-vivo and in- silico studies on Pteridophytes”** on XVI Conference of Indian Fern Society and International Symposium on Research in Pteridology, priorities and opportunities’ held at Calicut University on 17th to 19th March 2022.
4. **Resource person – Special lecture on the title “Nobel Laureates and their contribution in Science and Technology”** on National Science Day Celebrations-2022. Organized by Jamal Mohammed College (Autonomous) in Collaboration with Tamil Nadu State Council for Science and Technology on 25.02.2022.
5. **Resource person – Special lecture on the title ““In vitro and insilico studies on Bioactive compounds of Pteridophytes.”** by online mode during Two days International seminar on Plant sciences in the present scenario organized by Nirmala College for women, Coimbatore under DBT Star College scheme Sponsored by Department of Biotechnology, Ministry of Science and Technology, Govt. of India on 24.02.22.

6. **Resource person – Special lecture on the title** “Plants – Pioneer Motivator of Science and Technology” by online mode during Online National Science Conclave for School students conducted by Marian Star Centre, St.Mary’s College (Autonomous) Thoothukudi- South Indi, **Sponsored by Department of Biotechnology Ministry of Science and Technology, Govt. of India** Under Star College Programme 10th May to 16th May 2021
7. **Resource person-** “Microgreens cultivation“ Department of Botany, Holy Cross College, (Autonomous), Trichy -2. - 20th January to 10th February 2020
8. **Resource person – Special lecture on the title** ““Curriculum Development for Outcome Based Education” by online mode during 5 day faculty development programme organized by Patna Women’s College (Autonomous), Patna University during 28th September to 3rd October, 2020.
9. **Resource person – Special lecture on the title** ““Curriculum “Biochemical characterization of bacterial pathogens, Antibacterial studies and permanent slide preparation” Department of Botany, Holy Cross College, (Autonomous), Trichy - 22^{1st} & 22nd August, 2019
10. **Resource person** - Special Lecture on Tissue culture of ferns, Jamal Mohammed College (Autonomous). Tiruchirappalli on 19.01.17
11. **Resource person** - Orientation for Shift I and Shift II teachers for Skill Based elective II- Addressing on Agricultural issues. Holy Cross college (Autonomous). Tiruchirappalli on 27.11.2015
12. **Resource person** - CSIR –NET coaching class for life sciences School of Biological sciences St.Joseph’s College (Autonomous) Tiruchirappalli 15.08.15 and 13.12.15
13. **Resource person-** Oriented School teachers on “Plant Biology for PG Assistants” Department of Botany, Holy Cross College, (Autonomous), Trichy -22nd and 23rd August 2013
14. **Resource person** - Training for school teachers for Census (2011), Seva Sangam school conducted by Ministry of Home Affairs, Govt of India 25th and 27th Jan and 04thFeb 2011
15. **Resource person** - Training Programme for school teachers on “SAMACHEER KALVI” Holy Cross College,(Autonomous), Trichy -2 - 27th August 2011.
16. Judge for Mini expo 2015- St.Joseph’s Anglo Indian Girls HSC Trichy -1 on 20.10.15

16. CONSULTANCY/ MENTORSHIP

Name of the Staff	Title of the Programme Conducted	Place and Duration
Dr.S.Catharin sara	Mentor- DBT-Star college scheme, Viva Voce, UG Group projects	Offline mode Jamal Mohammed college- 15.4.23

Dr.S.Catharin sara	Mentor- DBT-Star college scheme, External advisory committee member Jamal Mohammed college	Online mode Jamal Mohammed college- 26.9.22
Dr.S.Catharin sara	Mentorship discussion on - DBT-Star college scheme, Group Projects,	Offline mode PG and Research Department of Botany Jamal Mohammed college- 14.3.22
Dr.S.Catharin sara	Mentor- DBT-Star college scheme, V.V.Vanniamperumal College , Virudhunagar.	Online mode 2.2021

17. ORIENTATIONS/ REFRESHER COURSES /FDP ATTENDED

Name of the Programme	Place	Date and Year
FDP Programme (Online mode)	Vimala college (Autonomous), Thrissur, Kerala	14-21 - August 2023 (7 days)
Refresher course in Biosciences	UGC-HRDC, Academic Staff College, Bharathidasan University, Trichy -24	26 th Oct. to 15 th Nov. 2017 21 days
Refresher Course in Life Sciences	Academic Staff College, Madras University, Chennai	02 nd to 22 nd Februray 2012 22 days
Orientation Programme	Academic Staff College Bharathidasan University Tiruchirappalli – 620 023.	02 nd May to 29 th May 2009. 27 days

18. ELECTION DUTY

- Involved in Election duty as Presiding Officer for Parliament election, Trichy , 2010
- Involved in Election duty as Presiding Officer for Panchayat election – 2011.
- Involved in Election duty as Presiding Officer for Parliament election – 2021

19. COMPACT DISCS (VISUALS) TEACHING CDS

Prepared E content in various topics on

- DNA Finger printing

- History of Microbiology (College website)
- **Transgenic plants** (11 minutes movie)
- Chromatography

19.SEMINARS, CONFERENCES, SYMPOSIA, WORKSHOPS and TRAININGS etc attended

S.No	Name of the webinar/ Training/ Conference/Seminar/workshop	Presented/ Participated	Organized by
1.	International webinar on Blooming Liver Health: Promoting Wellness with Phytomedicines”	Participated	Sri Ramachandra Institute of Higher Education and Research (Deemed to be University) Porur, Chennai 09 th August 2023
2.	Webinar on ‘In vitro production of secondary metabolites’	Participated	PG and Research Department of Botany, Holy Cross College, Trichy on 16 th June 2020.
3.	Webinar series on “Androgogy of online teaching”	Participated	Internal quality Assurance Cell (IQAC) Holy Cross College (Autonomous) Trichy-2 (online) 29 th May,2020
4.	Webinar series on “ Remote Classrooms- Digital Technology in Teaching Learning”	Participated	Internal quality Assurance Cell (IQAC) Holy Cross College (Autonomous) Trichy-2(online) 30 th May,2020
5.	Webinar on ‘Protecting research inventions through Intellectual Property Rights’	Participated	PG and Research Department of Botany Holy Cross College (Autonomous) on 17 th June 2020

6.	UGC STRIDE COMPONENT I - Webinar series II on 'STRIDE tutorial for transdisciplinary research'	Participated	Centre for Research & Publications , Holy Cross College (Autonomous), Trichy (online) 11.06.2020
7.	International webinar on 'Phytochemicals as an antioxidant alternate to combat MDR'	Participated	PG and Research Department of Botany Holy Cross College (Autonomous) on 16 th July 2020
8.	One week online International Faculty Development Program on 'Artificial Intelligence and IoT – Heuristic and Transdisciplinary perspectives'	Participated	CICRSD , Holy Cross College (Autonomous), Trichy (Online) 04.07.2020 -10.07.2020
9.	UGC STRIDE Component I - FDP – Webinar Series III	Participated	Centre for Research & Publications , Holy Cross College (Autonomous), Trichy (online) 13.07.2020 to 18.07.2020
10.	National webinar on 'Diversity and distribution of Pteridophytes in India'	Participated	PG & Research Dept. of Botany , Holy Cross College (Autonomous), Trichy (online) 06.08.2020
11.	National webinar on 'Marine Bio-prospecting'	Participated	PG & Research Department of Botany , Holy Cross College (Autonomous), Trichy (online) 06.10.2020
12.	International webinar Lecture series "Bioscience A glance in Sharing & Learning"	Participated	St. Joseph's College 24 th – 26 th June 2020
13.	International Faculty development program (FDP) " Artificial Intelligence & IOT- Heuristic Trans disciplinary Perspectives"	Participated	Holy Cross College 4 th – 10 th July 2020
14.	International web conference on Impact of Covid-19 on education system	Participated	Dr.Babasaahds Ambedkar Marathnada University, Aurangabad, MS, India & Compu society of India Wikimedia India & IETE 30 th May 2020
15.	Webinar on 'Aadi Patamum Veetu thotamum'	Participated	Holy Cross College (Autonomous), Trichy (online) 20.07.2020

16	Webinar on ‘The implications of the NEP 2020 for Higher Education and Role of Teachers’	Participated	Internal quality Assurance Cell (IQAC), Holy Cross College (Autonomous), Trichy (online) 25.08.2020
17	Webinar on ‘Addressing Challenges in Higher Education through the OBE mode’	Participated	Internal quality Assurance Cell (IQAC), Holy Cross College (Autonomous), Trichy (online) 04.01.2021
18	International webinar Lecture series “Bioscience A glance in Sharing & Learning”	Participated	St. Joseph’s College 24 th – 26 th June 2020

S.No	Name of the seminar/conference/symposia and workshop etc.	Name of the sponsoring agency	Place and date
	SEMINARS		
1.	National Seminar on “Scientific Research and Education in Today’s Scenario”	Dept of Botany, Holy Cross College (Autonomous), Trichy	13 th and 14 th February 2019.
2.	National Colloquium on Higher Education : the past and the future	Centre for Education beyond Curriculum, CHRIST (Deemed to be University)	CHRIST (Deemed to be University). Bangaluru, 28 th to 30 th November 2018
3.	Seminar on “Goodness of God and Nature”	Holy Cross College (Autonomous), Trichy	Trichy – 6 th January 2018
4.	National seminar on “Bio – Entrepreneurship”	Holy Cross College	12 th Feb. 2016.
5.	National seminar on Whole grain for Healthy life	Indian Institute of Crop Processing Technology Govt. Of India	Thanjavur Tamil Nadu 16 th October 2015
6.	National Seminar on “Frontiers in Biotechnology” (NSFB 2013)	Nehru Memorial College (Autonomous)	Puthanampatti 8 th and 9 th August 2013
7.	National Seminar on “Advances in Biological Sciences”	Holy Cross College	Tiruchirappalli 25 th and 26 th February 2011
8.	National Seminar on “ Quality in Higher Education, From Assurance to Enhancement “	Stella Maris College	Chennai 2 nd and 3 rd February 2010
9.	National Seminar on” Industry Academia Synergy to Enhance Food Security through Processing and Value Addition”	Ministry of Food Processing Industry Govt. of India	Thanjavur 6 th and 7 th March 2010

10.	National Seminar on Climate change and environmental challenges	UGC, DST-FIST AND JGC-SAP	Annamalai University, Chidambaram 7 th and 8 th February 2009
11.	Recent trends in Plant Sciences	UGC and Bangalore University	St. Joseph's College , Bangalore 1 st and 2 nd February 2008
12.	State Level Seminar on "Green Health Care"	Dept. of Bot.	Holy Cross College 11 th January 2008.
13.	National Seminar on "Evolving strategies in Extension and Field outreach activities in Higher Education" .	UGC and IECD	Bharathidasan University 26 th and 27 th March 2007.
14.	National seminar on New Frontiers in Biological Sciences.	Holy Cross College Tiruchirappalli	19 th and 20 th January 2007
15.	National Seminar on Emerging Trends in Biological Sciences	Shrimathi Indira Gandhi College Tiruchirappalli	9 th and 10 th October 2006.
16.	National Seminar on Advances in Plant Sciences	Bharathidasan University Tiruchirappalli	24 th and 25 th February 2006.

S.No	Name of the seminar/conference/symposia and workshop etc.	Name of the sponsoring agency	Place and date
CONFERENCES			
1.	One day National Conference on "Innovation and Quality Enhancement in Higher Education Institutions(HEI) in the context of the National Education Policy (NEP) 2020"	CHRIST (Deemed to be University). Bangaluru,	17 th April 2023
2.	One day National conference on Life sciences	Life sciences, Holy Cross College	February 2023
3.	National conference on Nanoparticles and biomedicine in plant sciences	Department of Botany, Holy Cross College	December 2022.
4.	International Conference on 'Chemistry of Biomolecules-current Trends and future Perspective (ICCBCTFP- 2016)	Dept. of Chemistry, Holy Cross College (Autonomous)	Holy Cross College 27 th and 28 th July 2016.
5.	National Conference on "Biodiversity and and Climate change Adaptations – Current status trends and policy responses.	SERB-DST and MoES	St. Andrew's College Gorakhpur 03 rd and 4 th Dec. 2014.
6.	National Level Conference on "Recent Innovation and future Trends in Biology"	UGC and Department of Botany	National College 24 th and 25 th July 2014.

7.	International conference on Sustainable Utilization, Management and Conservation of Bioresources (ICSMCB-2013)	Department of Botany ,	St.Joseph's College(Autonomous) 10 th and 11 th January 2013
8.	National Conference on "Climate change, Biodiversity and Conservation"	DBT and DST	St.Andrew's College Gorakhpur 16 th and 17 th Feb. 2011.
9.	National Conference on "E-publishing in the Present Era of Consortium"	Central Library Holy Cross College(Autonomous) & Indian Academic Library Association.	Holy Cross College 21 st and 22 nd March 2011.
10.	II National Conference on "Recent Trends in Plant Sciences"	UGC and Bangalore University	St.Joseph's College Bangalore 1 st and 2 nd Feb. 2008
11..	Regional Conference on Fern Diversity of India.	CBB. St.Xaviers College Palayamakottai and St.Joseph's College. Tiruchirappalli	St.Joseph's College Tiruchirappalli. 24 th Feb. 2007
12.	XVI International Botanical Congress,	St.Louis USA Abstract Number: 5246, Poster No.-1322,	St. Louis, USA, July 1999.
13.	International Conference on Conservation of Tropical Species, Communities and Ecosystems",	Tropical Botanical Garden and Research Institute	Thiruvananthapuram 2 nd to 5 th December 1998

S.No	Name of the seminar/conference/symposia and workshop etc.	Name of the sponsoring agency	Place and date
	SYMPOSIA		
1.	National Symposium on "Recent Advances in Medicinal and Aromatic plants (NASYMP 15)	Department of Botany	St.Joseph's College (Autonomous) Trichy 5 th Feb 2015
2.	"National Symposium on Biotechnology for a Better future"	Laboratory of Applied Botany	St.Aloysius College. Mangalore 15 th to 17 th January 2004.
3.	National Symposium on Biodiversity, Conservation and Evolution of Plants"	Allahabad University	Allahabad 27 th to 29 th November 1997.

S.No	Name of the seminar/conference/symposia and workshop etc.	Name of the sponsoring agency	Place and date
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	WORKSHOP		
1.	Two day Workshop on “Plant tissue culture, Agrobacterium mediated transformation in plants and nanotechnology”	Department of Botany, Holy Cross College, (Autonomous),	Trichy, 28 th and 29 th August, 2018
2.	Three days workshop for “Basics of Bioinformatics and CADD”	DBT-BIF Centre Holy Cross college	Tiruchirappalli 12 th to 14 th August 2014.
3.	Four days workshop on “E content Development”	Council for College and curriculum development, Bharathidasan University & Holy Cross College (Autonomous)	Holy Cross College 29 th April to 2 nd May 2013
4.	Three days workshop on “Advances in Medicinal plant Biology and Toxicology”	ICMR and Prist University	Thanjavur 21 st and 22 nd June 2012.
5.	Two days workshop on “Electrophoretic techniques”	Sastha Insititute of Medical Technology	Woraiyur, 24 th and 25 th July 2010
6.	Five days Trainers workshop on “soft skills, Ethics and Human Values”	UGC sponsored	Holy Cross College Tiruchirappalli 11 th to 15 th June 2007.
7.	Two days National Workshop on ”Genome and Proteome analysis”	Dept. of Biotechnology and Bioinformatics	Holy Cross College Tiruchirappalli 20 th and 21 st August 2007
8.	One day workshop on “Patent Awareness”	Patent Facilitation centre, Technology Information broadcasting and assessment council	St.Joseph’s college 07 th April 2006.
9.	One day workshop for “Announcer/Emcess and other potential speech maker”	Dept. of English	Holy Cross College Tiruchirappalli 18 th and 19 th August.2005
10.	Two days State Level Workshop on PCR (Polymerase Chain Reaction)	Bishop Heber College	Tiruchirappalli September 2005.
11.	Three day workshop on “Recent trends in Plant Biotechnology”	Pachaiyappa plant science Research Forum, PG and Research Department of Botany, Pachaiappa’s College,	Chennai, 27 th - 29 th September, 1997
12.	Five day workshop on “Plant tissue culture”	St.Xavier’s College (Autonomous), Department of Botany	Palayamkottai 20 th -24 th , January, 1997

Training Programmes attended

S.No	Name of the Training programmes attended	Name of the sponsoring agency	Place and date
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1.	National level certificate course on Good Laboratory Practices (GLP) and Intellectual Property Rights (IPR)	Holy Cross College (Autonomous)	23 rd to 24 th February 2015.
3	Attended Master trainers programme for Census 2011	Thevar Hall , Main guard gate- conducted by Ministry of Home Affairs, Govt, of India	13 th December to 15 th December 2010
4.	Orientation programme	Women Studies Centre, Holy Cross College	20 th December 2010
5.	Orientation Programme	Academic Staff College Bharathidasan University Tiruchirappalli – 620 023.	02 nd May to 29 th May 2009.

Details of Innovations / Contribution in teaching during the year:

Innovations/Contributions in Teaching:		
a.	Design of Curriculum	n the design of Curriculum for B.Sc and M.Sc Botany courses.
b.	Teaching methods	<ul style="list-style-type: none"> · Introducing Novelty in Class Room Teaching according to the learning climate. · Use of Modern Technology like LCD Projector, Multimedia Teaching (using internet) & Visual Techniques. · Encouraging the students to maximize their Potential skills by increasing their social skills such as TeamSpirit, Leadership, Communication, Group Work etc. · Imparting different types of seminar and assignments using Charts, drawings, permanents slides, live materials and specimens in the department
c.	Laboratory experiments	<ul style="list-style-type: none"> · Use of Camera for studying tissues and special structures in plant cells · Card System for Taxonomy Referring plants in the field and creating Herbarium.
d.	Evaluation methods	<ul style="list-style-type: none"> · Group Discussion, · Seminar, · Assignments, · Charts, · Remedial test, · Quiz
d.	Preparation of resource material	<ul style="list-style-type: none"> · OHP sheets, · Power point Presentations, · Flash programs, · VCD preparation and presentation. Study manual preparation.
e.	Remedial teaching	<ul style="list-style-type: none"> · Remedial courses for I year students, · Handwriting improvement and · frequent test apart from classes to improve the poor absorbing students.
f.	Others	<ul style="list-style-type: none"> · Excursions for plant collection (Western Ghats – courtallam, kanyakumari) both local and forest areas, · visiting leading laboratories(Banana Research centre)

20. Any other information. Extra-curricular activities

- Completed DCA course
- “C” Certificate in National Cadet Corps (NCC)
- Typewriting in English (Lower)
- Skills on Operating Computers
- Black and White photography
- E-content preparation by using various softwares.

Place: TRICHY- 2

Date: 02.02.2024

DR.S.CATHARIN SARA