

Personal Profile

CHITTA RANJAN BARIK,
Assistant Professor (Stage- I), OES,
Department of Botany,
Government Women's College,
Sundargarh



CAREER OBJECTIVE:

To create innovative ideas and technologies in education and research and to share them with team members and colleagues to develop solutions to real challenges of the Institution which in turn would enhance the responsibility taking ability of mine and let me deal with new challenges keeping the best ideals of life intact.

ACADEMIC PROFILE:

Degree/ Stream	Institution	University/Board	Year of passing
PhD	School of Energy Science and Engineering, IIT Guwahati	Indian Institute of Technology Guwahati	Pursuing
M.Phil. Botany	Utkal University, Bhubaneswar	Utkal University	2012
M.Sc. Botany	Utkal University, Bhubaneswar	Utkal University	2010
B.Sc. Botany	Panchayat College, Bargarh, Odisha	Sambalpur University	2008
Intermediate (10+2)	Barpali College, Barpali, Bargarh, Odisha	Council of Higher Secondary Education	2005
Matriculation	Government Boys High School, Barpali, Bargarh, Odisha	Board of Secondary Education, Odisha	2003

FIELDS OF INTEREST/ SPECIALIZATION:

- ❖ Biochemistry and Molecular Biology
- ❖ Biofuels
- ❖ Ecology and Environmental Science
- ❖ Functional Food Science and Nutrition
- ❖ Physiology and Biochemistry of Stress
- ❖ Phytotaxonomy and Phytochemistry

RESEARCH EXPERIENCE

☞ Worked as a Junior Research Fellow in “National Carbon Project” sponsored by Indian Space Research Organization-Geosphere Biosphere Program (ISRO-GBP) at **Odisha Space Application Centre, Bhubaneswar** from October 2010 to March 2011.

☞ Worked as a Senior Research Fellow in Indian Council of Agricultural Research (ICAR) project “National Initiative on Climate Resilient Agriculture” at **Central Rice Research Institute, Cuttack** from March 2011 to April 2012 while pursuing M.Phil. Botany in Utkal University, Bhubaneswar.

☞ Worked in Dr. K. B. Satpathy’s Lab (Phytochemistry Laboratory in **Post Graduate Department of Botany, Utkal University, Bhubaneswar**) while pursuing Pre-PhD coursework in the same Department from April 2012 to March 2013.

☞ Joined as a Junior Research Fellow on 22nd March, 2013 in **Department of Chemical Engineering, IIT Guwahati** in Department of Biotechnology (DBT) sponsored R&D project entitled “Super Critical Fluid Extraction of Natural Antioxidants for Food Preservation from Spices and Non-conventional Fruits Endemic in North Eastern Region” under the supervision of Prof. V. V. Goud, Department of Chemical Engineering and Prof. L. Sahoo, Department of Biosciences and Bioengineering and switched to PhD program since 23rd July 2013 in **School of Energy Science and Engineering, IIT Guwahati**.

☞ Worked as an international research fellow in **Department of Applied Biological Sciences, The United Graduate School of Agriculture Science, Gifu University, Japan** through “Six-month Sandwich Program-2015” in Gifu University, Japan from October 2015 to March 2016.

☞ Worked as a Senior Research Fellow in **Department of Biosciences and Bioengineering, IIT Guwahati** in the Project entitled "**Development of abiotic stress resilient tropical pulses through tailoring of ABA receptor genes**" from September 2018 to April 2019.

M.Phil. DISSERTATION

“Role of Phosphorus for Enhanced Submergence Tolerance and Grain Yield in Rice Introgressed with SUB-1 Quantitative Trait Loci” from Central Rice Research Institute, Cuttack and Utkal University, Bhubaneswar.

PhD TITLE

Extraction of Valuable Phytochemicals from Sea Buckthorn (*Hippophae salicifolia* D. Don) for Bioactivities and Biodiesel Stability Studies and Saccharification of Spent Biomass for Biofuel Production

RESEARCH PUBLICATIONS AND PRESENTATIONS

PUBLICATIONS: Journals

1. A. Moges, **C. R. Barik**, L. Sahoo, and V. V. Goud (2022). Optimization of polyphenol extraction from *Hippophae salicifolia* D. Don leaf using supercritical CO₂ by response surface methodology. **3 Biotech**. 12(292) ;1-13
2. A. Moges, **C. R. Barik**, S. Purohit, L. Sahoo, and V. V. Goud (2021). Dietary and bioactive properties of the berries and leaves from the underutilized *Hippophae salicifolia* D. Don grown in Northeast India. **Food Science and Biotechnology**. 30(12); 1555–1569
3. S. Purohit, D. Kalita, **C. R. Barik**, L. Sahoo, and V. V. Goud (2021). Evaluation of thermophysical, biochemical and antibacterial properties of unconventional vegetable oil from Northeast India. **Materials Science for Energy Technologies** 4; 81–90
4. S. Purohit, **C. R. Barik**, D. Kalita, L. Sahoo, and V. V. Goud (2021). Exploration of nutritional, antioxidant and antibacterial properties of unutilized rind and seed of passion fruit from Northeast India. **Journal of Food Measurement and Characterization**. 15;

3153–3167

5. V. Kumar, J. Rawat, R. C. Patil, **C. R. Barik**, S. Purohit, H. Jaiswal, N. Fartyal, V. V. Goud, and A. S. Kalamdhad (2021). Exploring the functional significance of novel cellulolytic bacteria for the anaerobic digestion of rice straw. **Renewable Energy**. 169; 485-497
6. N. K. Mund, D. Dash, **C. R. Barik**, V.V. Goud, L. Sahoo, P. Mishra, and N. R. Nayak (2017). Evaluation of efficient glucose release using sodium hydroxide and phosphoric acid as pretreating agents from the biomass of *Sesbania grandiflora* (L.) Pers.: A fast growing tree legume. **Bioresource Technology**. 236; 97–105
7. N. K. Mund, D. Dash, **C. R. Barik**, V.V. Goud, L. Sahoo, P. Mishra, and N. R. Nayak (2016). Chemical composition, pretreatments and saccharification of *Senna siamea* (Lam.) H.S. Irwin & Barneby: An efficient biomass producing tree legume. **Bioresource Technology**. 207; 205–212
8. R. Timung, **C. R. Barik**, S. Purohit, and V.V. Goud (2016). Composition and anti-bacterial activity analysis of Citronella oil obtained by hydrodistillation: Process optimization study. **Industrial Crops and Products**. 94; 178–188

PUBLICATIONS: Conference Proceedings/Book Chapters

1. **C. R. Barik**, S. Purohit, L. Sahoo, and V. V. Goud (2017). *Qualitative phytochemical characterization of Sea Buckthorn (Hippophae salicifolia D. Don) plant parts from North-East India*. **Innovations in Food Processing Technologies** (New India Publishing Agency, ISBN- 9789386546517). Pp. 233- 243.
2. **C. R. Barik**, L. Sahoo, and V. V. Goud (2015). *Physico-chemical Characterization of Pulp and Seed Oils of Sea Buckthorn (Hippophae salicifolia D. Don) from Tawang District of Arunachal Pradesh, North Eastern India*. **Proceedings of 7th conference of the International Sea Buckthorn Association on “Sea Buckthorn: Emerging Technologies for Health Protection and Environmental Conservation”** (V. Singh, Ed-in-Chief, 2015), New Delhi, India. Pp. 184-191.
3. S. R. Kuanar, **C. R. Barik**, E. Kariali, R. K. Sarkar, and P.K. Mohapatra (2012). *Tiller dynamics of two wild relatives of cultivated rice in diversified habitats*. **Proceedings of the National seminar on Plants and Stress Management, H.K. Patra Eds.** Utkal University, Bhubaneswar. Odisha, India. Pp 103-107

4. H. K. Sahoo, C. R. Barik, K. B. Satapathy, P. Sahu, and R. C. Misra (2011). *Humankind and Nature: An ethnomedical research in Bargarh district of Odisha, India*. **Proceedings of the National seminar on Medicinal and Aromatic Plants: Traditional Knowledge and Current Research**, V. N. Auto. College, Jajpur, Odisha, India. Pp 67-72.

PAPER/ POSTER PRESENTATION

International Conferences:

1. C. R. Barik, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud. Salient Features of Leaf Extracts of Sea Buckthorn (*Hippophae salicifolia* D. Don) from North-East India. **Assam Botany Congress (ABC-01) and International Conference on Plant Science**. 4-6th February, 2019. Gauhati University, Guwahati, Assam, India.
2. C. R. Barik, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud. *Hypocholesterolemic and antibacterial activities of alcoholic leaf extracts of Sea Buckthorn (Hippophae salicifolia D. Don)*. **3rd International Conference on Nutraceuticals and Chronic Diseases**. 14-16th September, 2018. Swami Rama Himalayan University, Dehradun, Uttarakhand, India.
3. S. Purohit, C. R. Barik, L. Sahoo, V. V. Goud. *Antibacterial activity of Passion fruit alcoholic extract against various pathogenic bacteria*. **3rd International Conference on Nutraceuticals and Chronic Diseases**. 14-16th September, 2018. Swami Rama Himalayan University, Dehradun, Uttarakhand, India.
4. C. R. Barik, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud. *Functional Food Prospectives of Leaf Extracts of Sea Buckthorn (Hippophae salicifolia D. Don) from North-East India*. **Indo-Japan Bilateral Symposium on Future Prospective of Bioresource Utilization in North-East India**. 1-4th February, 2018. IIT Guwahati, Guwahati, Assam, India.
5. C. R. Barik, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud. *Functional Food Prospectives of Pulp and Seed Oils of Sea Buckthorn (Hippophae salicifolia D. Don) from North-East India*. **Indo-Japan Bilateral Symposium on Future Prospective of Bioresource Utilization in North-East India**. 1-4th February, 2018. IIT Guwahati, Guwahati, Assam, India.

6. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud. *Hypolipidemic and Antioxidative Properties of North-East Indian Sea Buckthorn (Hippophae salicifolia D. Don) Leaf Extracts*. **International Conference on Natural Products Utilization: from Plants to Pharmacy Shelf**. 18-21st October, 2017. Bansko, Bulgaria.
7. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud. *Characterization of Sea Buckthorn (Hippophae salicifolia D. Don) Oils from North-East India for Various Applications*. **International Conference on Natural Products Utilization: from Plants to Pharmacy Shelf**. 18-21st October, 2017. Bansko, Bulgaria.
8. R. Timung, **C. R. Barik**, S. Purohit, V. V. Goud. *Anti-bacterial Properties of Hydrodistilled Java Citronella (Cymbopogon winterianus Jowitt) Essential Oil*. **International Conference on Natural Products Utilization: from Plants to Pharmacy Shelf**. 18-21st October, 2017. Bansko, Bulgaria.
9. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud (2017). *Thermo-physico-chemical and nutraceuticals characterization of Sea Buckthorn (Hippophae salicifolia D. Don) oil from North-East India*. **International Conference on “Sophisticated Instruments in Modern Research”**. 30th June-1st July, 2017. IIT Guwahati, Guwahati, Assam, India.
10. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud (2017). *Nutraceuticals, pharmaceuticals and cosmeceuticals properties of Sea Buckthorn (Hippophae salicifolia D. Don) oil from North-East India*. **International symposium on Plant Biotechnology for Crop Improvement**. 20-21st January, 2017. IIT Guwahati, Guwahati, Assam, India.
11. **C. R. Barik**, S. Purohit, L. Sahoo, V. V. Goud (2015). *Physico-chemical Characterization of Pulp and Seed Oils of Sea Buckthorn (Hippophae salicifolia D. Don) from Tawang District of Arunachal Pradesh, North Eastern India*. **7th conference, International Sea Buckthorn Association**, 24-26th November, 2015, New Delhi, India.
12. **C. R. Barik**, L. Sahoo, V. V. Goud (2014). *Qualitative Phytochemical Investigation and Characterization of Sea Buckthorn (Hippophae salicifolia D. Don) Plant Leaves from North Eastern India*. **CHEMCON-2014**, 27-30th December, Punjab University, Chandigarh, Punjab, India.
13. **C. R. Barik**, N. N. Deshavath, L. Sahoo, V. V. Goud (2014). *Morphometric, Pharmacognostical and Physicochemical Characterization of Sea Buckthorn (Hippophae*

salicifolia D. Don): *The Himalayan Wonder Plant*. **Asian Plant Science Conference**, 1-3rd November, Bhairahawa, Nepal.

14. N. K. Mund, D. Dash, **C. R. Barik**, L. Sahoo, V. V. Goud, Nihar R. Nayak, (2014). *Enzymatic saccharification of Sesbania grandiflora (L.) Poiret biomass by cellulose solvent and organic solvent-based lignocellulose fractionation (COSLIF)*. **Asian Plant Science Conference**, 1-3rd November, Bhairahawa, Nepal.

National Conferences/ Workshops:

1. Participated in **4th Plant Proteomics workshop: Sea buckthorn- Genomics, Proteomics & Metabolomics, 2019**, 23-27th December, Department of Botany, University of Delhi.
2. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud. *Nutraceutical potentials of sea buckthorn (Hippophae salicifolia D. Don) oil from North-East India*. **3rd National Conference of Sea buckthorn association of India on Sea buckthorn: Translating Research into Sustainable Utilization & Conservation, 2019**, 19-20th December, Department of Botany, University of Delhi.
(**Second Best Poster Award**)
3. **A. M. Tadesse**, **C. R. Barik**, S. Purohit, V. V. Goud. *Antioxidant and antimicrobial properties of successive extractives of sea buckthorn (Hippophae salicifolia D. Don) berry*. **3rd National Conference of Sea buckthorn association of India on Sea buckthorn: Translating Research into Sustainable Utilization & Conservation, 2019**, 19-20th December, Department of Botany, University of Delhi.
4. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud. *Antioxidative, antimicrobial and Hypolipidemic activities of leaf extracts of Sea Buckthorn (Hippophae salicifolia D. Don) from North-East India*. **National conference on Biotechnological Interventions for Environmental Stress Management in Plants and Microbes and 42nd Annual conference of Orissa Botanical Society, 2018**, 20-21st January, Utkal University, Bhubaneswar, Odisha, India.
(**Professor B. P. Choudhury Memorial Award for Best Paper Presentation**)
5. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud. *Characterization of Sea Buckthorn (Hippophae salicifolia D. Don) oils from North-East India for Nutraceutical, Pharmaceutical and Cosmeceuticals applications*. **National conference on**

Biotechnological Interventions for Environmental Stress Management in Plants and Microbes and 42nd Annual conference of Orissa Botanical Society, 2018, 20-21st January, Utkal University, Bhubaneswar, Odisha, India.

6. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud (2017). *Antioxidant and Hypolipidemic Properties of North-East Indian Sea Buckthorn (Hippophae salicifolia D. Don) Leaf Extracts*. **Reflux 2017**, 25-26th March, IIT Guwahati, Guwahati, India.
7. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud (2017). *Nutraceutical, Pharmaceutical and Cosmeceutical Properties North-East Indian Sea Buckthorn (Hippophae salicifolia D. Don) oils*. **Reflux 2017**, 25-26th March, IIT Guwahati, Guwahati, India.
(Second Best Poster Award)
8. **C. R. Barik**, S. Purohit, L. Sahoo, and V. V. Goud (2017). *Qualitative phytochemical characterization of Sea Buckthorn (Hippophae salicifolia D. Don) plant parts from North-East India*. **National conference on Trends and Innovation in Food Processing: Prospects and Challenges**, 27-28th February, 2017, Tezpur University, Tezpur, Assam, India.
9. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud (2017). *Nutraceuticals, pharmaceuticals and cosmeceuticals properties of Sea Buckthorn oil (Hippophae salicifolia D. Don) from North-East India*. **National conference on Trends and Innovation in Food Processing: Prospects and Challenges**, 27-28th February, 2017, Tezpur University, Tezpur, Assam, India.
10. **C. R. Barik**, S. Purohit, E. Yanase, S. Nagaoka, L. Sahoo, V. V. Goud (2017). *In-vitro Hypocholesterolemic, Antioxidant properties and Thermo-physico-chemical characterization of Pulp and Seed Oils of Sea Buckthorn (Hippophae salicifolia D. Don) collected from Arunachal Pradesh, North-East India*. **National conference on Bioprospecting in Life Sciences Research for Human Welfare and 41st Annual Conference of Orissa Botanical Society**, 24-26th December, 2016, Sambalpur University, Sambalpur, Odisha, India.
11. **C. R. Barik**, L. Sahoo and V. V. Goud, (2015). *Identification of Some Potential Energy Plants from North East India for Biomass Energy Production: An Agro-taxonomic Approach*. **Frontier Energy Research with Industry Academia Partnership Workshop**, 20-21st March, Centre for Energy, IIT Guwahati, Guwahati, India.

12. **C. R. Barik**, R. Timung, L. Sahoo and V. V. Goud, (2014). *Promising Monocot Plants of North Eastern India for Biomass Energy Production: A Solution to the Energy Crisis*. **Reflux 2014**, 29-30th March, IIT Guwahati, Guwahati, India.
13. H. K. Sahoo and **C. R. Barik** (2013). *Wild foods in meeting the dietary needs of tribal people: An ethnobiological investigation in Bargarh district, Odisha, India*. **100th session of the Indian Science Congress in Plant Sciences section**, 3-7th January, 2013, Calcutta University, Kolkata, India.
14. S. R. Kuanar, **C. R. Barik**, E. Kariali, R. K. Sarkar, and P.K. Mohapatra (2012). *Tiller dynamics of two wild relatives of cultivated rice in diversified habitats*. **National seminar on Plants and Stress Management**, 27-28th February, 2012, Utkal University, Bhubaneswar, Odisha, India.
15. H. K. Sahoo, **C. R. Barik**, K. B. Satapathy, P. Sahu, and R. C. Misra (2012). *Humankind and Nature: An ethnomedical research in Bargarh district of Odisha, India*. **National seminar on Medicinal and Aromatic Plants: Traditional Knowledge and Current Research**, 5-6th February, 2012, Vyasagar Autonomous College, Jajpur, Odisha, India.
16. **C. R. Barik**, H. K. Sahoo, K. B. Satapathy, P. Sahu, and R. C. Misra (2011). *Herbal aids for human intelligence and memory*. **36th Annual Conference of the Orissa Botanical Society**, 28-29th December, 2011, Talcher Autonomous College, Talcher, Odisha, India.

Faculty Development Programmes (FDP)

1. Participated & completed successfully AICTE Training and Learning (ATAL) Academy online FDP on “**Emerging Food Processing Technologies: Prospects and Challenges for Food and Nutrition Security**” from 04 – 08th January 2021 at **Tezpur University, Tezpur**.
2. Participated & completed successfully AICTE Training and Learning (ATAL) Academy online FDP on "**Computer Science & Biology**” from 18-22nd January 2021 at **Malaviya National Institute of Technology Jaipur, Jaipur**.

3. Participated & completed successfully AICTE Training and Learning (ATAL) Academy online FDP on "**Photography**" from 9-13th February 2021 at **Dayalbagh Educational Institute, Dayalbagh.**
4. Participated & completed successfully AICTE Training and Learning (ATAL) Academy's 15- Day Online Training Course on "**Mental Healthcare and Biostatistics**" Under the project entitled "**Centre for Depression Diagnosis and Medication Adherence**" from 30-05-2022 to 15-06-2022 at **Department of Electronics and Electrical Engineering, IIT Guwahati, Guwahati.**
5. Participated & completed successfully online FDP on "**Exploring Frontiers in Biological and Life Sciences**" from 13 – 17th May 2022 organized by **School of Biological & Life Sciences, Galgotias University, Greater Noida, (UP) India.**

ACHIEVEMENTS

- Reviewed manuscripts for several journals including Nature Scientific Reports, Bioresource Technology etc.
- Visited many countries like Japan, Bulgaria, Austria, Greece, Hungary, Nepal, Bhutan, Myanmar to attend conferences and Research Program.
- Got Fellowship to carry out research in Department of Applied Biological Science, Gifu University, Japan for 6 months from October 2015 to April 2016 under "Sandwich Research Program".
- Qualified various National Eligibility Test like CSIR-UGC NET in Life Sciences for Assistant Professor, June 2014; UGC NET in Environmental Sciences for Assistant Professor, December 2013 and June 2014, CBSE-UGC NET in Environmental Sciences for Junior Research Fellowship and Assistant Professor, December 2014; GATE in Life Sciences, 2014 and NE-SLET in Life Sciences for Assistant Professor, December 2013.
- Got Post Graduate meritorious scholarship in basic science for the year 2008-10, funded by State Council for Science and Technology, Government of Odisha.
- Awarded as the best student (Narendra Pratibha Samman) with all-round activities in the P.G. Dept. Of Botany, Utkal University for the year 2009-10.
- Participated in Nature Camp twice organized for M.Sc. Life Science Students at Bhitarkanika National Park by Regional Museum of Natural History, Bhubaneswar.

- Surveyed and gave a report on Flora found in Tiger's and Lion's enclosures at Nandan Kanan Zoological Park, Bhubaneswar.
- Participated in more than Fifty National and International Conferences, Seminars, Workshops and Symposiums and got several prizes.
- Life member of Indian Science Congress, Orissa Botanical Society and Red Cross Society.
- Participated in one Inter-State and Two Zonal Level Red Cross Camps and got different prizes and declared as Best Volunteer for Service in a Zonal Camp.
- Got more than Four Hundred prizes of National, State, Zonal, District, University, College, School levels in different Quiz, Essay, Debate, Elocution, Drama, and Creative Writings etc. Competitions.
- Awarded Literary Champion for the year 2006-2007, 2007-2008 in Main Hostel, Panchayat College overall competitions and competitions of Science Association, Panchayat College, Bargarh
- Written and directed three dramas, acted in seven dramas and got one best director, one best writer and three awards for acting. Also acted in World famous Dhanuyatra, Bargarh in 2008.
- Endowed with responsibilities and honor as General Secretary of Main Hostel, Panchayat College and Secretary of Science Association, Panchayat College, Bargarh during Graduation final year (2007-2008).

CURRENT RESPONSIBILTIES

Co-Ordinator of Youth Red Cross (YRC), Red Ribbon Club (RRC), ECO Club, Green Audit, and Academic Audit; Government Women's College, Sundargarh.

OTHER ACTIVITIES AND HOBBIES

Plant collection and Identification, Wildlife Photography, Yoga Practice, Reading- Magazines, News Papers, Dramas, Novels; Writing- Poems, Articles, Dramas, Anchoring, Acting, Currency Collection and last but not the least always interested to know about new things.