Dr. Ashok Kumar Nayak

Designation: Guest Faculty

Qualification: Ph. D.

Date of Birth: 01-07-1988

Date of Joining: 06-07-2024

Tel: +91 7978003911; Email: ashok88.immt@gmail.com

ORCID: https://orcid.org/0000-0003-0293-5312

Area of Interest:

- DNA nanotechnology, Gene Therapy, Cancer Biology

Courses taught:

- Biochemistry, Immunology, Molecular biology, Microbiology, Genetics, Instrumentation, Plant Biotechnology

Career:

- Guest Faculty, Department of Biotechnology, Rama Devi Women's University, July, 2024- Continuing
- Guest faculty, Department of Botany and Biotechnology, Ravenshaw University, September, 2023-June, 2024
- Research fellow, CSIR- IMMT, Feb, 2013-May, 2020

Teaching Experience: 1 yr

Research Experience: 2 yr

Awards & Honors:

- Feb. 2019: Best oral presentation at National Workshop on Emerging Trends in Life Sciences for Sustainable Development organized by Rama Devi Women's University, Bhubaneswar, India.
- May, 2018: Qualified CSIR-senior research fellow (SRF)
- June, 2012: Qualified CSIR-UGC NET (Eligibility for lectureship)
- March, 2012: Qualified Graduate Aptitude Test for Engineering (GATE) conducted jointly by the Indian instituted of Science and Indian Institutes of Technology

Research Guidance:

- M.Sc. Thesis supervised- 08

Publications:

Total Publication: 10, Total citation: 152, H-index: 07, i10 index: 06

Journal publications:

1. M. Gourai, **A.K. Nayak**, P.S. Nial, B. Satpathy, R. Bhuyan, S.K. Singh, and U. Subudhi. Thermal plasma processing of Moringa oleifera biochars: adsorbents for fluoride removal from water. **RSC advances**, 13: 4340-4350, **2023**. (**IF**- **3.9**)
2. K. Kumari, A. Kar**, A.K. Nayak**, S. Mishra**,** and U. Subudhi. miRNA-mediated alteration of Sulfatase Modifying Factor 1 expression using self-assembled branched DNA nanostructures. **RSC Advances,** 11: 10670-10680, **2021.** (**IF**- **3.9**)
3. **A.K. Nayak,** S.K. Rath and U. Subudhi. Preparation of stable branched DNA nanostructures: Process of cooperative self-assembly. **The Journal of Physical Chemistry B,** 123: 3591-3597, **2019**. (**IF**- **2.8**)
4. S. Nahar, **A.K. Nayak**, A. Ghosh, U. Subudhi and S. Maiti. Enhanced and synergistic downregulation of oncogenic miRNAs by self-assembled branched DNA. **Nanoscale**, 10: 195-202, **2018**. (**IF**- **5.8**)
5. M.M. Bhanjadeo, **A.K. Nayak** and U. Subudhi. Surface-assisted DNA self-assembly: An enzyme-free strategy towards formation of branched DNA lattice. **Biochemical and Biophysical Research Communication,** 2: 492-498, **2017**. (**IF**- **2.5**)
6. M.M. Bhanjadeo, **A.K. Nayak** and U. Subudhi. Cerium chloride stimulated controlled conversion of B-to-Z DNA in self-assembled nanostructures. **Biochemical and Biophysical Research Communication,** 4: 916-921, **2017**. (**IF**- **2.5**)
7. **A.K. Nayak**, A. Mishra, B.S. Jena, B.K. Mishra and U. Subudhi. Lanthanum induced B-to-Z transition in self-assembled Y-shaped branched DNA structure. **Scientific Reports,** 6: 26855, **2016.** (**IF**- **3.8**)
8. **A.K. Nayak** and U. Subudhi. Directed self-assembly of genomic sequences into monomeric and polymeric branched DNA structures. **RSC Advances,** 4: 54506-54511, **2014**. (**IF**- **3.9**)

Publication of Books/book chapters:

1. M.M. Bhanjadeo, **A.K. Nayak** and N.R. Singh. (2023) Biomolecule integrated nanostructures for advanced diagnosis systems in viral disease management of crops. In Agricultural and Environmental Nanotechnology: Novel Technologies and their Ecological Impact (pp. 251-286). Singapore: Springer Nature Singapore.

2. **A.K. Nayak*** and A.S. Mohanty. (2018) Multi-utility of Gold Nanoparticles in Cancer. Nanostructures towards biomedical application. In Current Status of Nano Materials for Multi functional Applications (p145-196), Canada, Arcler Press.

Participation in conference and seminars:

1. **A.K. Nayak**, S.K. Rath and U. Subudhi. Error Free Synthesis of Stable Branched DNA Using Genomic Sequences. *National Workshop on Emerging Trends in Life Sciences for Sustainable Development* organized by Rama Devi Women's University, Bhubaneswar, India. 8-9 February, **2019**.
2. **A.K. Nayak**, S.K. Rath and U. Subudhi. Structural Optimization of Potent Anticancer Branched DNA. *ICNDTC 2018: International Conference on Nanomedicine in Diagnostics &Theranostics in Cancer* organized by Utkal University, Bhubaneswar, India. 9-11 March, **2018**, Book of abstract p-53.
3. **A.K. Nayak**, S.K. Rath and U. Subudhi. Structural and thermodynamic study of self-assembled monomeric branched DNA. *Conference on 'The Frontiers in Modern Biology'-2018* organized by Indian Institutes of Science Education and Research, Kolkata, India. 19-21 January, **2018**, Book of Abstracts p-73.
4. M.M. Bhanjadeo, **A.K. Nayak** and U.Subudhi. Controlled conversion of B-to-Z DNA in self-assembled nanostructures by cerium chloride. *International conference on Nanomaterials and Nanotechnology* organized by International Association of Advanced Materials in collaboration with VBRI Press AB, Sweden at Vinoba Bhave Research Institute, Allahabad, India. 1-3 March, **2017**.
5. **A.K. Nayak,** M.M. Bhanjadeo and U. Subudhi. Thermodynamic study of branched DNA nanostructure: Revealing the self-assembly process and structural stability. *International Conference on 'Recent Advances In Material Chemistry'-2017* organized by P.G. Department of Chemistry, Utkal University, Bhubaneswar, India. 24-26 February, **2017**, Book of Abstracts P-106.
6. M. Gourai, **A.K. Nayak**, M.M. Bhanjadeo, B. Satpathy, S.K. Singh and U. Subudhi. Moringa leaf-based biochar for mitigation of fluoride menace in Odisha. XXXiii rd Conference of the International Society for Fluoride Research, Hyderabad, India, 9-11 November, **2016**.
7. **A.K. Nayak,** and U. Subudhi. A Leaf-like branched DNA material by molecular self-assembly of genomic sequences. *International conference on Faraday Discussion on Nanoparticle assembly: From fundamentals to applications. Jointly Organized by* Royal Society of Chemistry, UK at Indian Institute of Technology Mumbai, India. 7-9 January, **2016,** Book of Abstracts P16.
8. **A.K. Nayak**, A. Mishra, B.S. Jena, B.K. Mishra and U. Subudhi**.** Rare-earth induced conformation changes in branched DNA. EMN Meeting on DNA and RNA *International conference on Energy, Materials & Nanotechnology. Jointly Organized by* Bogazici University, Turkey & IFFS, UESTC, China, at Istanbul, Turkey, 9-12 November, **2015** Book of Abstracts A-37.
9. **A.K. Nayak** and U. Subudhi**.** A novel strategy of using genomic sequences for the generation of branched DNA materials. *International conference on emerging materials & processes (ICEMP-2014). Organized by CSIR-Institute of Minerals & Materials Technology,* Bhubaneswar-13, Odisha, India. 26-28 February, **2014** Book of Abstracts NMNC-26.