Curriculum Vitae

SAMIK NANDA

Professor
Department of Chemistry
Indian Institute of Technology
Kharagpur, 721302
West Bengal, India
Tel: +91-3222-283328
snanda@chem.iitkgp.ernet.in

OBJECTIVE

To carry out challenging and interdisciplinary research in an academic setting utilizing my experience in asymmetric organic synthesis and enzymology related knowledge.

HIGHLIGHTS OF QUALIFICATIONS

- Extensive research experience in organic synthesis: Total synthesis of biologically active complex natural products of marine origin and terpenoids.
- Chemoenzymatic synthesis: Application of enzyme based asymmetric transformations in organic synthesis such as EKR (enzymatic kinetic resolution), EED (Enantioselective enzymatic desymmetrization), ME-DKR (metal enzyme combined dynamic kinetic resolution).
- Research experience in combinatorial chemistry: Operating knowledge in MOS for the parallel synthesis of small molecular libraries both in solid phase as well as liquid phase.
- Screening for novel plant and microbial enzymes in asymmetric organic synthesis.

EDUCATION

Ph.D. / Organic Synthesis
Indian Institute of Chemical Technology, Hyderabad, India, 2002
Thesis: **Application of enzymes in organic synthesis** (Advisor: Dr. J. S. Yadav)
M. Sc. / Organic Chemistry
Thesis: "Application of a novel 1, 4 dipolar synthon in organic synthesis"
Indian Institute of Technology, Kharagpur, India, 1997

EXPERIENCE

1. **2016 August to 2017 May**; Visiting Professorship at ICCAS, Beijing: Chinese Academy of Science PIFI award (sabbatical leave from IIT Kharagpur)
2. **2006 April-Onwards, Department of Chemistry, IIT-Kharagpur**,

Research area: Total synthesis of natural products, Combinatorial biocatalysis, Asymmetric synthesis, Highthroughput screening & assay for novel enzymes.

2. 2004 June- Onwards **Biotechnology Reseacrh Center**, Toyama Prefectural University, Japan. Post Doctoral Research Associate (JSPS) with **Prof. Y. Asano**. Screening for novel plant and microbial enzymes in asymmetric synthesis.

3. 2002 -2004 **Department of Chemistry**, Texas A & M University, College Station, Texas, USA. **Postdoctoral Research Associate** (With Prof. **A. Ian. Scott**). Genetically engineered synthesis of Taxoids. Design and synthesis of glycouril based templates for efficient intramolecular Carbon-Carbon bond forming condensation reaction.

4. 1997-2002 **Indian Institute of Chemical Technology Doctoral Research (Thesis title: Application of enzymes in organic synthesis)**
Explored the synthetic utility of several enzymes mainly hydrolase's and oxidoreductase. Developed new methods for asymmetric hydroxylation with lipoxygenase, reduction of parochial ketones. Synthesized some biologically active arylethanolamine drugs e.g., Denopamine, Tembamide and Ageniline.

AFFILIATIONS

Young associates of the Indian Academy of Sciences, Bangalore (2010)
American Chemical Society (Member)
Sigma Xi (Member)
JSBBA (Japan society for bioscience bioengineering and agrochemistry)
BCJ (Biocatalysis society of Japan)

Courses taught so far: Chemistry (CY11001); Chemistry Lab (CY19001); Principles of Organic Synthesis (CY41011; 3-1-0); Advanced Organic Chemistry Lab (CY49011; 0-0-6); Biochemical Techniques Laboratory (CY49006; 0-0-6); Newer Asymmetric Reactions (CY61032; 3-0-0); Strategies and Methods in Organic Synthesis-II (CY41003; 3-0-0); Science of Living systems (BS-20001); Structure and Function of Biomolecules (CY41018; 3-0-0); Principles and Application of Stereoselective Reactions (CY50037; 3-0-0).

Sponsored Project: Worth INR 2.2 Cr from different funding agencies as sole PI (DST-India: 3; DBT-India: 2; CSIR-India: 3; BRNS-India: 1; IFS (Sweden): 1; IIT-KGP: 2).

No of research scholars awarded PhD	7
No of PhD scholars currently enrolled	10
No of MSc students successfully completed their projects	16
No of summer interns completed their project (IAS summer internship programme)	8

Awards

- ***CAS-PIFI visiting professorship award at ICCAS, Beijing (2016-2017)***
- ***Young associates of the Indian Academy of Sciences, Bangalore (2010)***

- ***JSPS postdoctoral researcher (2004-2006)***

Publication Profile

Total Number	58
From IIT-KGP (independent publication)	40
Patent	1
Total citations	840; ***h*** index: 18 Source:http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7102719202&zone=#

List of Publications and presentations (Last five years)

1. Exploration of Ring Rearrangement Metathesis (RRM) Reaction: A General and Flexible Approach for the Rapid Construction of [5,n] fused bicyclic systems en-route to linear triquinanes. Acharyya, R.; Rej, R.; Nanda, S. *J. Org. Chem.* (doi: 10.1021/acs.joc.7b03021).
2. "Asymmetric Synthesis of Ramariolides A and C through Bimetallic Cascade Cyclization and *Z–E* Isomerization Reaction." Pal, P.; Nanda, S. *Org. Lett*, **2017**, *19*, 1164-1167.
3. "Asymmetric total synthesis of (***R***)-α-cuparenone, (***S***)-cuparene and formal synthesis of (***R***)-β-cuparenone through Meinwald rearrangement and ring closing metathesis (RCM) reaction." Kumar, R.; Halder, J.; Nanda, S. *Tetrahedron,* **2017**, *73*, 809-818.
4. **"**Asymmetric synthesis of dihydroartemisinic acid through intramolecular stetter reaction". Rej, R. K.; Acharyya, R. K.; Nanda, S. *Tetrahedron*, **2016**, *72*, 4931-4937**.**
5. "Enantiopure hydroxymethylated cycloalkenols as privileged small molecular multifunctional scaffolds for the asymmetric synthesis of carbocycles". Kumar, R.; Rej, R. K.; Halder, J.; Mandal. H.; Nanda, S. *Tetrahedron: Asymmetry*, **2016**, *27*, 498-512**.**
6. "Asymmetric total synthesis of paecilomycin F, cochliomycin C, zeaenol, 5-bromo-zeaenol and 3,5-dibromo-zeaenol by Heck coupling and late stage macrolactonization approach". Pal, P.; Chakraborty, J.; Mali, A.; Nanda, S. *Tetrahedron,* **2016**, *72,* 2336-2348**.**
7. "Enantioselective biocatalytic reduction of 2,2-disubstituted ethylacetoacetates: an indirect desymmetrization approach for the synthesis of enantiopure (*S*)-4-hydroxy-3,3-

disubstitutedpentane-2-ones". Halder J.; Das, D.; **Nanda, S.** *Tetrahedron Asymmetry*, **2015**, *26*, 1197-1208.

8. "Asymmetric total synthesis of (-)-mangiferaelactone by using an appropriately substituted thiophene as a masked synthon for C-alkyl glycoside". Kumar, R.; Rej, R.; Nanda, S. *Tetrahedron Asymmetry*, **2015**, *26*, 751-759.
9. "Asymmetric synthesis of cytospolides C and D through successful exploration of stereoselective Julia-Kocienski olefination and Suzuki reaction followed by macrolactonization". Rej, R.; Kumar R.; **Nanda, S.** *Tetrahedron*, **2015**, *71*, 3185-3194.
10. "Asymmetric total synthesis of paecilomyci E, 10'-epi-paecilomycin E and 6'-epi-cochliomycin C". Pal, P. Jana, N.; **Nanda, S.** *Org*. *Biomol*. *Chem*, **2014**, *12*, 8257-8274.
11. "Stereoselecive synthesis of enantiopure oxetanes, carbohydrate mimic, ε-lactone, and cyclitols from biocatalytically derived β-hydroxyesters as chiral precursors". Das, D.; Halder J.; Bhuniya, R.; **Nanda, S.** *Eur*. *J*. *Org*. *Chem*, **2014**, 5229-5246.
12. "Asymmetric synthesis of naturally occurring (-)-seimatopolides A and B". Rej, R.; Pal. P.; **Nanda, S**. *Tetrahedron*, **2014**, *70*, 4457-4470.
13. "Asymmetric synthesis of naturally occurring nonenolide xyolide through cross metathesis and macrolactonization reaction". Rej, R.; Jana, A.; **Nanda, S**. *Tetrahedron*, **2014**, *70*, 2634-2642.
14. "Chemoenzymatic asymmetric total synthesis of nonanolide (*Z*)-cytospolides D,E and their stereoisomers". Rej, R.; **Nanda, S**. *Eur*. *J*. *Org*. *Chem*, **2014**, 860-871.
15. "Chemoenzymatic asymmetric synthesis of fluoxetine, atomoxetine, nisoxetine, and duloxetine". Rej, R. K.; Das, T.; Hajra, S.; **Nanda, S.** *Tetrahedron Asymmetry*, **2013**, *24*, 913-918.
16. "Asymmetric total synthesis of 5`-epi-cochliomycin C". Jana, N.; Das, D.; **Nanda, S.** *Tetrahedron*, **2013**, *69*, 2900-2908.
17. "Asymmetric total synthesis of (-)-rasfonin". Bhuniya, R.; **Nanda, S**. *Tetrahedron*, **2013**, *69*, 1153-1165.
18. "Asymmetric total synthesis of 5'-epi-paecilomycin-F". Jana, N.; **Nanda, S**. *Tetrahedron Asymmetry*, **2012**, *23*, 802-808.
19. "Asymmetric synthesis of cochliomycin-A and zeaenol". Jana, N.; **Nanda, S**. *Eur*. *J*. *Org*. *Chem*. **2012,** 4313-4320.

20. "Stereoselective synthesis of a novel natural carbasugar and analogues from hydroxymethylated cycloalkenone scaffolds". Rej, R.; Jana, N.; Kar, S.; **Nanda, S.** *Tetrahedron*: *Asymmetry*, **2012**, *23*, 364-372.
21. "*Klebsiella pneumoniae* (NBRC 3319) Mediated Asymmetric Reduction ofα-Substituted β-Oxo Esters and Its Application to the Enantioiselective Synthesis of Small-Ring Carbocycle Derivatives" Bhuniya, R.; Mahapatra, T.; **Nanda, S**. *Eur. J. Org. Chem*, **2012**, 1597-1602.
22. "Asymmetric synthesis of both the enantiomers of antidepressant venlafaxine and its analogues". Bhuniya, R.; **Nanda, S**. *Tetrahedron Letter*, **2012**, *53*, 1990-1992.
23. "Total synthesis of stagonolide-B". Das, T.; Mahapatra, T.; **Nanda, S**.; *Tetrahedron Letter*, **2012**, *53*, 1186-1189.
24. "Chemoenzymatic total synthesis of stagonolide-E". Das, T and **Nanda, S.** *Tetrahedron Letter*, **2012**, *53*, 256-258.
25. "Enantiomeric scaffolding of α-tetralone and related scaffolds by EKR (enzymatic kinetic resolution) and stereoselective ketoreduction with ketoreductases". Bhuniya, R.; **Nanda, S.** *Org*. *Biomol*. *Chem*, **2012**, *10*, 536-547.
26. "Stereoselective desymmetrization of 2,2-bishydroxymethyl-1-tetralones by iodocyclization, synthesis of novel [6,6,5] tricyclic framework and chemo-enzymatic diversity generation". Mahapatra, T.; Jana, N.; **Nanda, S**. *Adv*. *Syn*. *Catal*, **2011**, *353*, 2152-2168.