

CURRICULAM- VITAE

Dr A. R. Suresh Babu, M.Sc, Ph.D (Organic Chemistry)

Home

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Personal Details

Gender : Male
Nationality : Indian
Marital Status : Unmarried
DOB : 31-03-1979

OBJECTIVE

To obtain a challenging position in a progressive research group and university as researcher/ scientist/faculty which utilize my teaching and problem solving skills and technically competency in diverse areas of chemistry organic synthesis, heterocyclic chemistry, carbohydrate chemistry, organometallic chemistry, co-ordination chemistry, steroidal chemistry, nucleotides, polymer chemistry, supramolecular chemistry, total synthesis of natural products, nanoparticles, quantum dots and medicinal bio-chemistry and wide range of interdisciplinary areas of research in chemistry.

CURRENT POSITION

Post-doctoral researcher for the synthesis of biodegradable single walled and mutiwalled carbon nanotubes (CNTs) at **Institute of Cellular and Molecular Biology (IBMC), University of Strasbourg, France** under the guidance of Prof. Alberto Bianco from April-2013 till mid April-2014.

RECENT POSITION

Post-doctoral researcher for the synthesis of new polymer/fluorophore-linked quantum dots and nanoparticle (surface functionalisation) for photonics and biomedical applications at **ENS Ecole Normale Superieur de Cachan-Cachan, Paris, France** under the guidance of Prof. Isabelle Ledoux-Rak and Dr Vasyly Shynkar from July-2012.

PREVIOUS POSITION

Post-doctoral research scientist under the guidance of Prof. Denis Seraphin at UFR Sciences & Pharmaceutiques, (SONAS), **University of Angers, Angers, France**

and latter as faculty and research scientist at **Anna University of Technology- Anna University, Chennai, INDIA.**

CAREER HIGHLIGHTS

- Teaching experience in Engineering College
- Experience in organic synthesis of simple to complex molecules and development of new synthetic strategies and methodologies.
- Experience in Greener approaches to organic synthesis such as microwave & catalyst assisted organic reactions and its applications, extraction and purification of organic components from plant source.
- Ability to act as a team leader/ team player in a research group.

EDUCATION

- **Ph.D., Organic Chemistry**, Department of Organic Chemistry, University of Madras, Tamil Nadu, India, Supervisor: Dr. R. Raghunathan, Dissertation Title: "An expedient synthesis of novel oxindole/ferrocenyl spiropyrrolidines/pyrrolizidines and steroidal heterocycles through cycloaddition methodology-august-2008."
- **M.Sc., Organic Chemistry**, Department of Organic Chemistry, University of Madras, Tamil Nadu, India, 1999-2001 (2nd Rank holder, 80%).
- **B.Sc., Chemistry**, Pachaiyappa College, University of Madras, Tamil Nadu, India, 1996-1999 (1st Rank holder, 83%).

INSTRUMENTATION SKILLS: Spectral techniques- NMR (Bruker 300MHz), Raman, FT- IR (Shimadzu 8300-FT, PERKIN ELMER), LC-MS, GC, TEM, HPLC, UV-Visible spectrophotometer (Shimadzu 260), Crystal growth from solution, TGA, DTA, Molecular modelling, Calorimetry, Mass Spectrometer and general analytical instruments. (Handling air/moisture sensitive chemicals, glove box)

MERIT SCHOLARSHIPS:

Graduate Aptitude test in Engineering (GATE)-2001-Scored 91.11 percentile conducted by HRD, Government of India.

HONORS AND AWARDS:

- Nominated as one of the top researcher in synthetic organic chemistry under the INSPIRE faculty scheme by **INDIAN NATIONAL SCIENCE ACADEMY, (INSA), GOVERNMENT OF INDIA**, in **DECEMBER-2011**
- Recipient of **National Senior Research Fellow (SRF)** Award from Council of Scientific and Industrial Research, New Delhi, India, 2006.
- Recipient of **National Junior Research Fellow (JRF)** Award from Council of Scientific and Industrial Research (**CSIR**), India, 2002 and declared as one among top 20% in the session.
- Recipient of **National lectureship award** from **CSIR**, Government of India, 2001.

ADDITIONAL RESEARCH EXPERIENCE

- Worked as a Research Associate in the **Department of Chemistry, Indian Institute of Technology (IIT- Madras)**, Chennai. (Broad field: Carbohydrate Chemistry).
- Worked in Multi-step synthesis, Separation (Column chromatography), Purification (Fractional crystallization, distillation, vacuum distillation etc) of some novel organic compounds and spectral interpretation of compounds.
- In Using Mass spectroscopy as a tool to rationalize the formation of possible products /isomeric products.
- Handled air, moisture, light sensitive reagents and carcinogenic, toxic reagents safely including biochemical assays.

CURRENT RESEARCH INTEREST

- Synthesis of new nanoparticles, quantum dots (QD's)-surface functionalisations, characterization and applications for material and biological applications.
- Designing novel synthetic routes to materially significant and biologically important and pharmacologically active compounds such as natural products dyes for solar cell, energy transfer etc.
- To develop newer synthetic strategies for the complex heterocyclic targets using inorganic solid supports, modified Lewis acid, multicomponent reactions, synthesis of new catalysts and ligands as receptors and for asymmetric synthesis

of natural products and analyzing their stereoselectivity issues with application of such complex heterocycles in biochemical processes.

- Synthesis of steroidal heterocycles, macrocycles for the treatment of Hormonal dependent breast cancer (HDBC) as new drugs and biosensors.
- Organometallic Chemistry: Synthesis of metallocene bearing complex heterocycles.
- Synthesis of nucleosides, unnatural amino acids and sugar-hybrids for biological applications.
- Synthesis of new functionalized graphene, single and multi-walled carbon nanotubes, organic semi-conductors, organic dyes, conducting polymers, ionic liquids for application in electronic/nanotechnology.
- Synthesis of novel organic molecules for the treatment of disease such as HIV, cancer, diabetes, malaria, leishmania, Alzheimer and Parkinson disease.
- Synthesis of organic molecules such as pheromones for biological pest control.
- Isolation and Characterization of new organic molecules from plant and animals.
- Environ-benign organic synthesis using solid supports coupled with microwave accelerated protocols, photochemistry and solvent free reaction, homogenous catalysis.

DETAILS OF RESEARCH PROJECT WORK

PROJECT TITLE: *Carbohydrate Chemistry*

FINANCIAL ENTITY: *Indian Institute of Technology (IIT), Madras, Tamilnadu, INDIA.*

PERIOD : *1-8-2001 TO 31-12-2001*; PRINCIPAL INVESTIGATOR: *Dr Indrapal Singh.*

PROJECT TITLE: *Synthesis and application of spiro-pyrrolidines/pyrrolizidines through cycloaddition reaction protocol including theoretical and crystallographic aspects*

FINANCIAL ENTITY: *Council of Scientific and Industrial Research (CSIR), New Delhi, Government of India, INDIA.*

PERIOD: *1-8-2002 TO 31-7-2003*; PRINCIPAL INVESTIGATOR: *Dr R. Raghunathan*

PROJECT TITLE: *Microwave in organic synthesis-Rapid access to synthesize nitrogen heterocycles through a facile [3+2]-cycloaddition of azomethine ylides-A Greener approach.*

FINANCIAL ENTITY: *Council of Scientific and Industrial Research (CSIR), New Delhi, Government of India, INDIA.*

PERIOD: *1-8-2003 TO 31-7-2004*; PRINCIPAL INVESTIGATOR: *Dr R. Raghunathan*

PROJECT TITLE: *Expedient synthesis, biomedical, material application and electrochemical behavior of Ferrocene grafted pyrrolidine/pyrrolizidine heterocycles through cycloaddition methodology.*

FINANCIAL ENTITY: *Council of Scientific and Industrial Research (CSIR), New Delhi, Government of India, INDIA.*

PERIOD: *1-8-2004 TO 31-7-2006; PRINCIPAL INVESTIGATOR: Dr R. Raghunathan*

PROJECT TITLE: *An easy approach to synthesize spiro-indenoquinoxaline-pyrrolidines and pyrrolizidines analogues for biological and material applications*

FINANCIAL ENTITY: *Council of Scientific and Industrial Research (CSIR), New Delhi, Government of India, INDIA.*

PERIOD: *1-8-2006 TO 31-7-2007; PRINCIPAL INVESTIGATOR: Dr R. Raghunathan*

PROJECT TITLE: *A convenient synthetic methodology for steroidal pyrrolidine heterocycles as potential anti-cancer agents (HDBC, Hormonal Dependent Breast Cancer).*

FINANCIAL ENTITY: *Council of Scientific and Industrial Research (CSIR), New Delhi, Government of India, INDIA.*

PERIOD: *1-8-2007 TO 31-7-2008; PRINCIPAL INVESTIGATOR: Dr R. Raghunathan*

PROJECT TITLE: *Synthesis of electrochemically active bithiopene and coumarin linked triazoles via Click reaction for DIAMS applications*

FINANCIAL ENTITY: *University of Angers, Angers, FRANCE*

PERIOD: *22-9-2008 TO 21-9-2009; PRINCIPAL INVESTIGATOR: Dr Denis Seraphin*

PROJECT TITLE: *A Greener and Catalytic Approach for the Synthesis of new ferrocene-conjugates nucleosides, fluoroscent phenanthroline complexes and porphyrin heterocycles for material and biomedical applications.*

FINANCIAL ENTITY: *University of Madras, India*

PERIOD: *01-2-2010 TO 25-8-2010; PRINCIPAL INVESTIGATOR: Dr R. Raghunathan*

PROJECT TITLE: *Synthesis of new ferrocene appended indenoquinoxallines and dispiro-pyrrolo-piperazine heterocycles.*

FINANCIAL ENTITY: *University College of Engineering, Anna University/Anna University of Technology, Chennai, INDIA*

PERIOD: *1-09-2010 TO 30-06-2012*

PRINCIPAL INVESTIGATOR: *Dr A.R. Suresh Babu, Visiting faculty & Research Scientist*

PROJECT TITLE: *Synthesis of new polymer/fluorophore linked quantum dots and nanoparticles for photonics and biomedical applications.*

FINANCIAL ENTITY: *ENS-Ecole Normale Supérieure de Cachan, Cachan, Paris, France.*

PERIOD: *6-7-2012 onwards till September-2012*

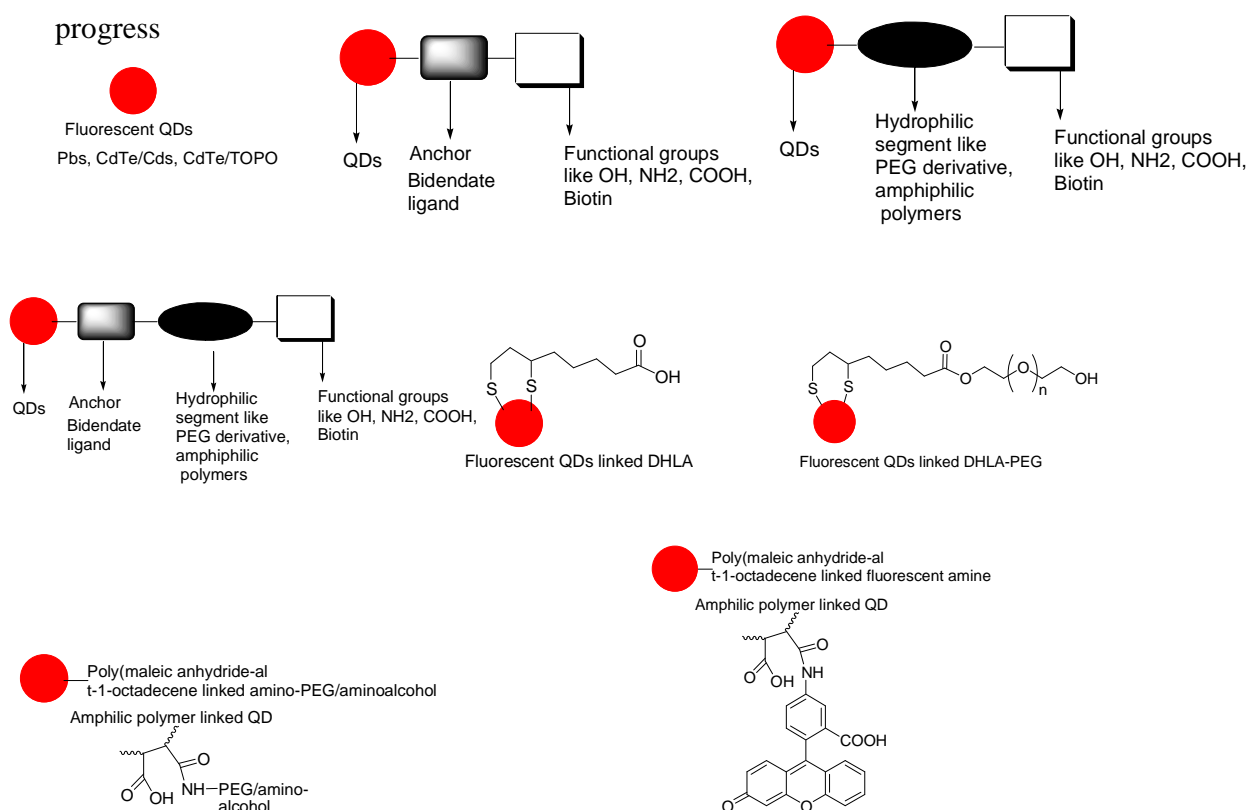
PRINCIPAL INVESTIGATOR: *Prof Isabelle Ledoux-Rak and Dr Vasyl Shynkar*

*PROJECT TITLE: Synthesis of biodegradable Single-Walled and Multiwalled Carbon Nanotubes .
 FINANCIAL ENTITY: IBMC, University of Strasbourg, France.
 PERIOD: 15-7-2014 onwards
 PRINCIPAL INVESTIGATOR: Prof Alberto Bianco and Dr Cecilia Menard Moyon*

RESEARCH ACCOMPLISHMENTS DURING MY POSTDOCTORAL AND DOCTORAL PROGRAMME IN SYNTHETIC ORGANIC CHEMISTRY

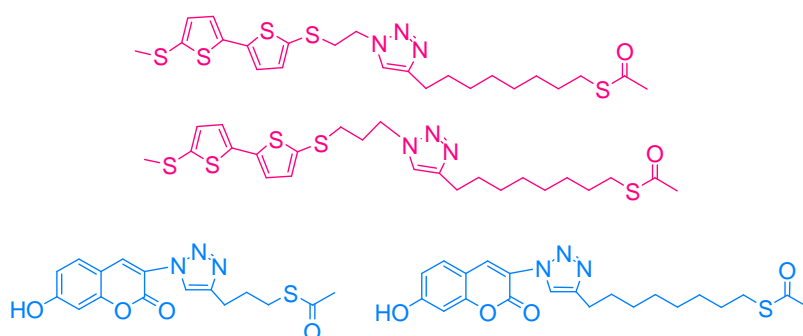
➤ **Summary of the work done during the post-doctoral research at Ecole Normale Supérieur de Cachan , France:**

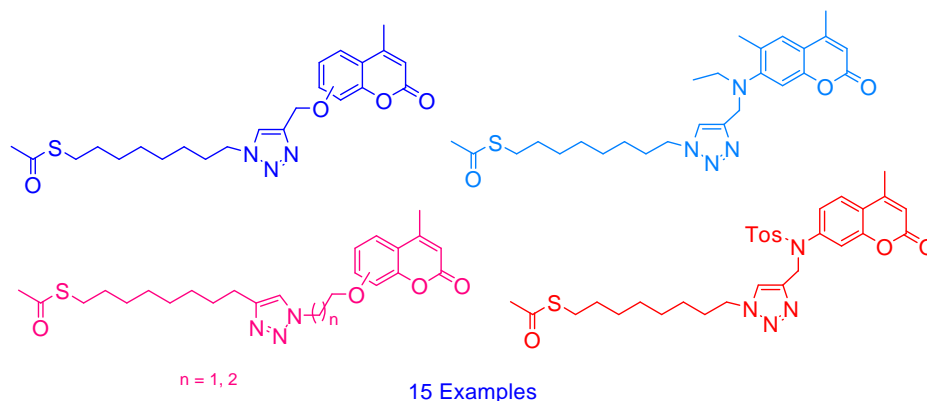
Quantum dots were linked to bidendate ligands/ PEG/Amphiphilic polymers and their application as biosensors and biophotonics were carried out. Detail studies are in progress



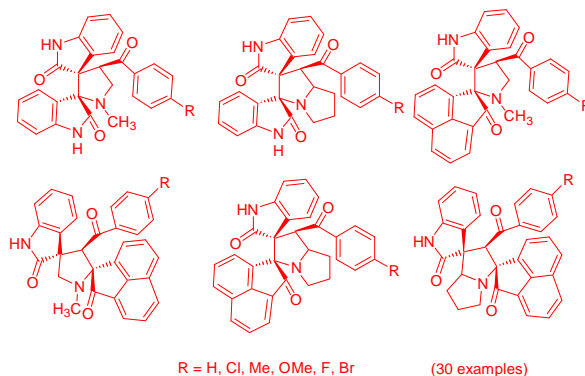
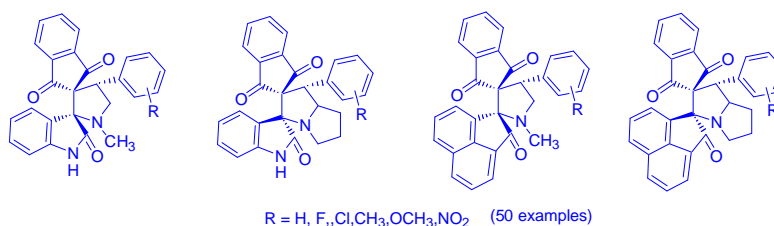
➤ **Summary of the work done during the post-doctoral research in University of Angers, France:**

Plants are one of the major sources for the biologically active organic compounds and play a key role in medicinal chemistry for the treatment of various diseases. DIAMS method is able to determine the secondary metabolites of complex vegetal extracts. The high throughput analyses of vegetal extracts are relatively difficult to perform in MALDI mass spectrometry, since the preparation of the sample involves the co-crystallization of the matrix with the analyte. Moreover irradiation of the matrix ion produces many low- m/z vs high-intensity ions preventing the detection of low molecular weight molecules such as secondary metabolites. We have developed a matrix-free alternative to MALDI analyses by the means of an original *desorption/ionization on self-assembled monolayers surfaces* (DIAMS) technique. Monolayers were formed by using novel thiophene and coumarin-triazole analogues that absorbs the laser beam at 337 nm. The new fluorescent thiophene and coumarin-triazole analogues were synthesized by **Cu (I)-assisted click-reaction**. We utilized DIAMS method which is well suitable for the detection and quantification of the low molecular weight compounds that are present in plant extracts. Some of the isoquinoline alkaloids from the root extracts of *Thalictrum flavum* have been detected by the DIAMS method by us. Indeed, this technique would be promising suitable for the qualitative and quantitative analysis of polar and non-polar organic components that are widely distributed in the plants, without any preliminary chromatographic resolution.

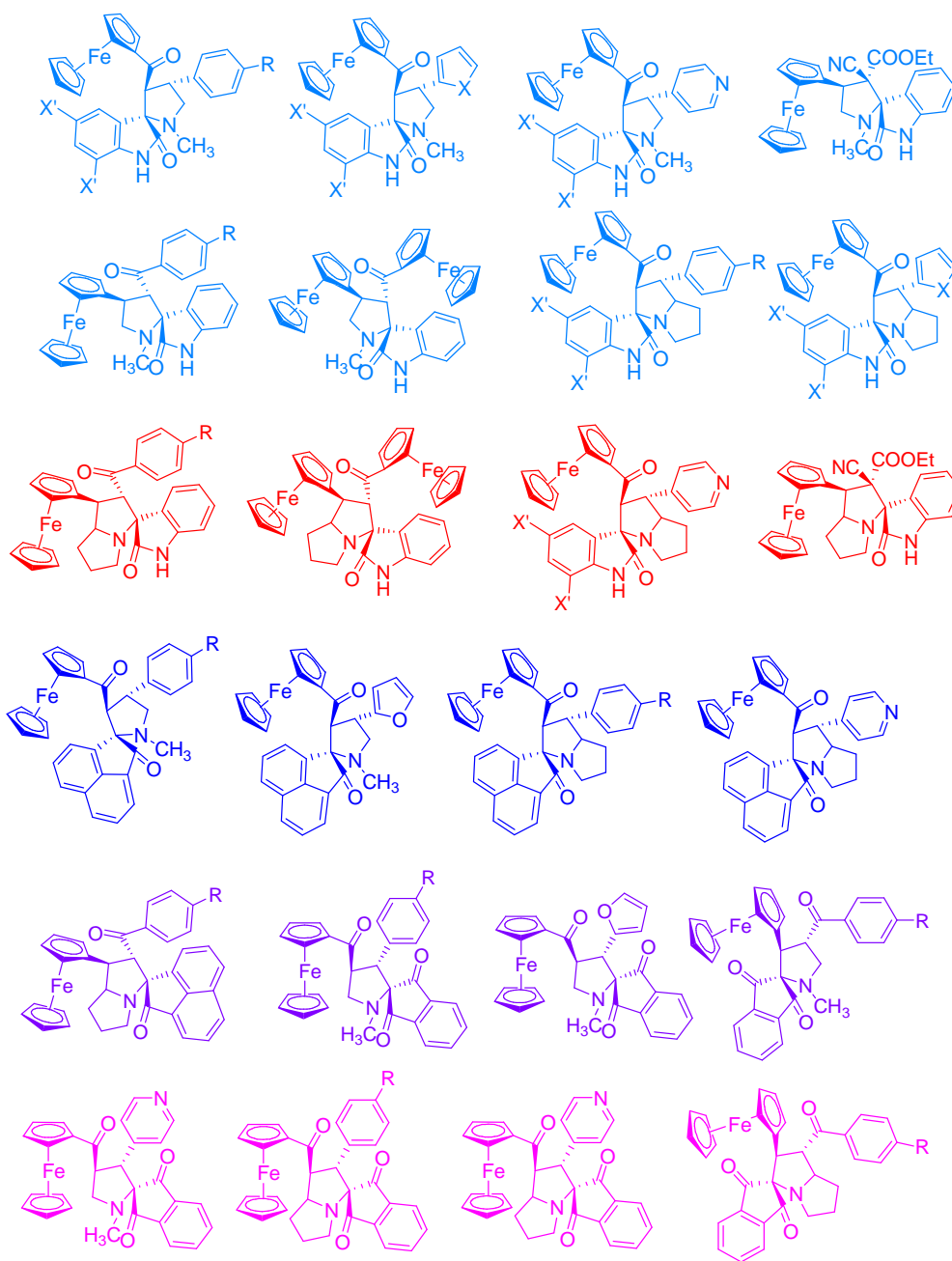




- Developed novel methods for the synthesis of a series of spiro heterocyclic derivatives through regioselective 1,3-dipolar cycloaddition reaction involving versatile 1,3-dipole like azomethine ylides. Biologically important and pharmacologically promising classes of spiropyrrolidines, spiropyrrolidines containing oxindole, acenaphthenone, indanedione have been synthesized.

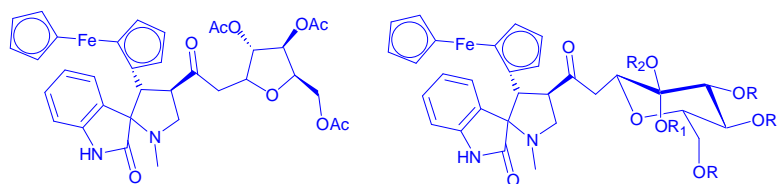


- Synthesis of new class of ferrocene based spiro-oxindolopyrrolidines and spiropyrrolidines, spiro-acenaphthenone pyrrolidines/pyrrolizidines and spiro-indanedione pyrrolidines/pyrrolizidines through 1,3-dipolar cycloaddition methodology. Cyclic-voltametric studies is also done to study the electrochemical behavior of these newly synthesized along with antimicrobial activity studies.



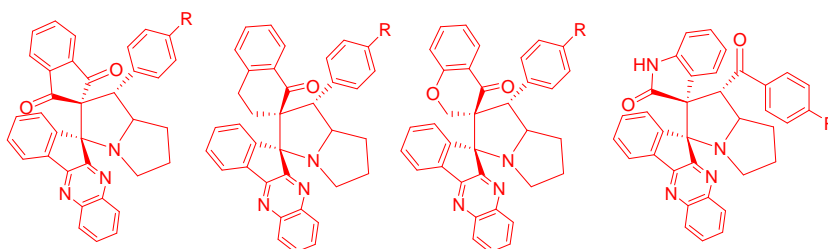
R= H, NO₂, OMe, X' = Br, X = O, S (60 examples)

- Synthesised a new series of ferrocene-sugar conjugates pyrrolidines/pyrrolizidines through 1,3-dipolar cycloaddition methodology for their use as bio-sensors and biological applications.



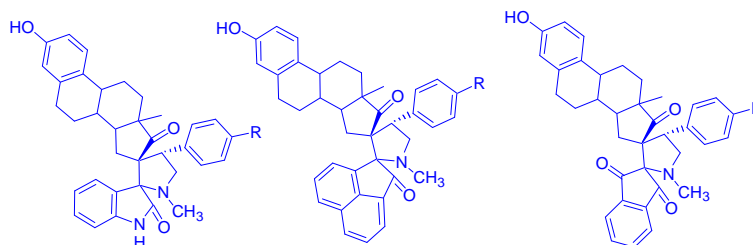
R = Ac, R1 = R2 = H, Ac

- Multicomponent Reaction (MCRs), Greener and Catalytic approach adopted for the Synthesis of a series of rare class of significant indenoquinoline derived spiro-pyrrolizidines through multicomponent 1,3-dipolar cycloaddition methodology.

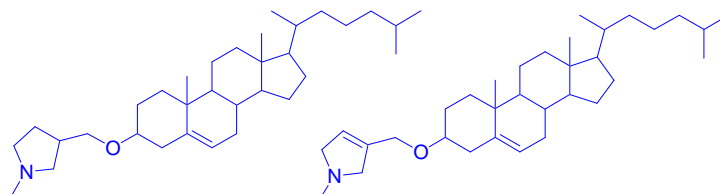


R = H, Cl, Me, OMe, NO₂, NMe₂ (20 examples)

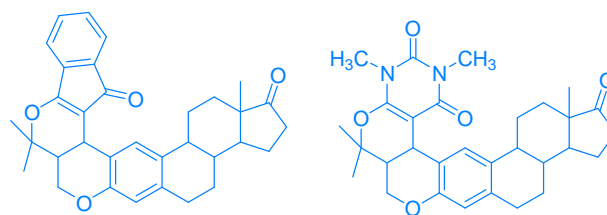
- Synthesised a series of steroidal heterocycles through inter- and intramolecular cycloaddition methodology for the treatment of Hormonal Dependent Breast Cancer (HDBC) and anti-microbial studies. Formations of the product were also supported by molecular modelling and empirical methods.



R = H, F, Cl, OMe (6 examples)

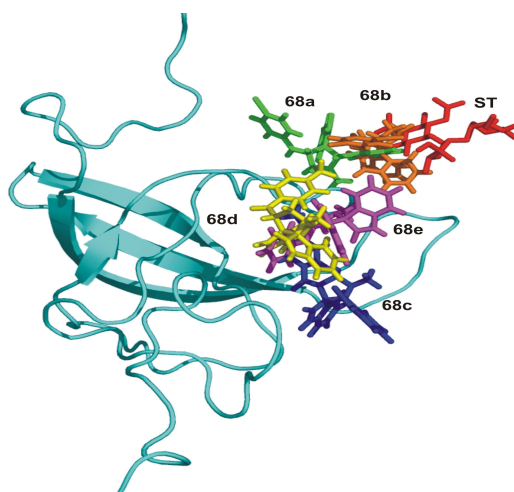


- Synthesised some novel steroidal polycyclic heterocycles through intramolecular hetero-Diel's-Alder reaction. Stereochemical issues were addressed using theoretical calculation, energy minimised conformational studies and empirical methods.



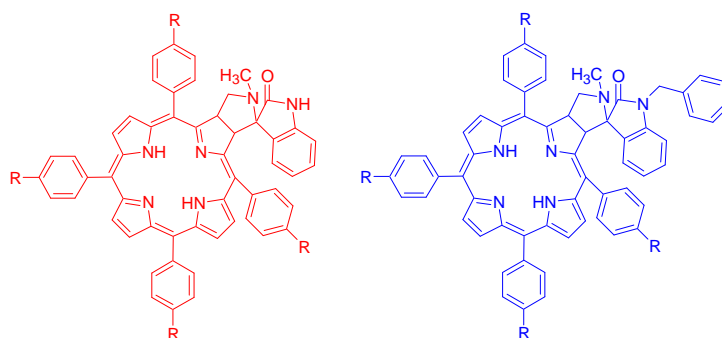
(2 examples)

- Antimicrobial potency and docking studies of some of the new spiro heterocycles synthesized were accomplished.



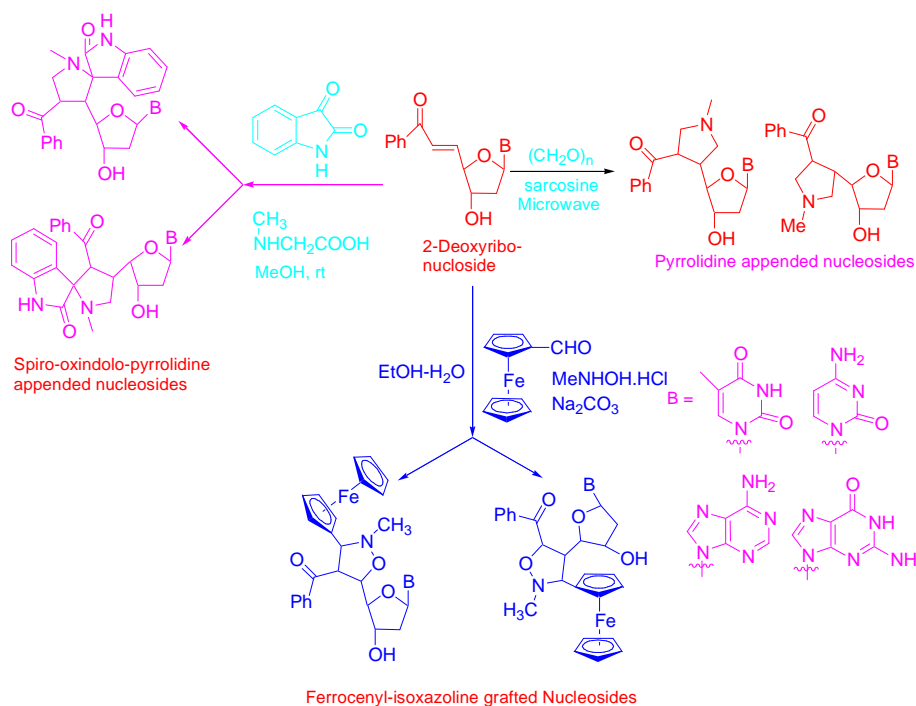
Binding site of five new compounds (**68a-e**) (dispiro-dioxindolopyrrolidines) & Streptomycin (ST) with S12 protein of 30S ribosomal subunit.

- Synthesised some novel oxindole bearing porphyrin macrocycles through 1,3-dipolar cycloaddition reaction for Photodynamic Therapy (PDT) for treating cancer by tethering the macrocycle to fluorescent moiety such as bithiophene and phenothiazine derivatives.

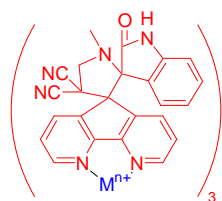


R = H, Cl, F, Me, NO₂

- Recently synthesized some novel ferrocene-(redox label) and oxindole bearing nucleosides through 1,3-dipolar cycloaddition reaction for biological applications (In progress).

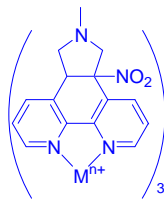


- Recently, synthesized some novel diazafluorene/phenanthroline tethered pyrrolidines through 1,3-dipolar cycloaddition reaction for material and biological applications (Application part in progress).



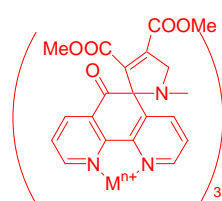
M= Cu, Co, Ru

Tris-metal complex of
dispiro-oxindolo-diazafluorene-
tethered pyrrolidines



M= Cu, Co, Ru

Tris-metal complex of
spiro-phenanthroline
tethered pyrrolidines



LIST OF PUBLICATIONS IN INTERNATIONAL AND NATIONAL JOURNALS

International Journals: 52 (25 articles related to synthetic chemistry and 26 article related to synthesis and crystallographic studies; National Journals: 1 (synthetic chemistry)

1. A Highly regioselective synthesis of 1-*N*-methyl-spiro-[2.3']-oxindole-spiro-[3.2'']-indane-1'',3''-dione-4-aryl-pyrrolidines through 1,3-dipolar cycloaddition protocol. **Suresh Babu, A. R.**; Raghunathan, R.; Gayatri. G.; Narahari Sastry, G. *Journal of Heterocyclic Chemistry* **2006**, *43*, 1467-1472.
2. Microwave induced regioselective synthesis of novel dispiro-[acenaphthenone-indanedione]-pyrrolizidines. **Suresh Babu, A. R.**; Raghunathan, R. *Journal of Heterocyclic Chemistry* **2006**, *43*, 1357-1360.
3. Heteropolyacid-silica mediated [3+2]-cycloaddition of azomethine ylide- a facile multicomponent one-pot synthesis of novel dispiroheterocycles. **Suresh Babu, A. R.**; Raghunathan, R. *Tetrahedron Letters* **2006**, *47*, 9221-9225.
4. Synthesis of novel dispiroheterocyclic framework via the regioselective 1,3-dipolar cycloaddition reaction of azomethine ylides. **Suresh Babu, A. R.**; Raghunathan, R. *Synthetic Communication* **2007**, *37*, 451-458
5. ZrOCl₂.8H₂O mediated microwave induced-[3+2]-cycloaddition of azomethine ylide- a facile one-pot synthesis of novel dispiroheterocycles. **Suresh Babu, A. R.**; Raghunathan, R. *Tetrahedron Letters* **2007**, *48*, 305-308.
6. TiO₂-silica mediated one pot three component 1,3-dipolar cycloaddition reaction: A facile and rapid synthesis of dispiro acenaphthenone/ oxindole [indanedione/oxindole] pyrroloisoquinoline ring systems. **Suresh Babu, A. R.**; Raghunathan, R. *Tetrahedron* **2007**, *33*, 8010-8016.
7. Ultrasonics assisted-silica mediated [3+2]-cycloaddition of azomethine ylides- a facile multicomponent one-pot synthesis of novel dispiroheterocycles. **Suresh Babu, A. R.**; Raghunathan, R. *Tetrahedron Letters* **2007**, *48*, 6809-6813.
8. Regioselective synthesis of novel dispiro-oxindoloindenoquinoline pyrrolidines through 1,3-dipolar cycloaddition methodology. **Suresh Babu, A. R.**; Raghunathan, R. *Synthetic Communication* **2008**, *38*, 1433-1438.

9. Synthesis, characterisation, anti-microbial activity and docking studies of novel dispirooxindolopyrrolidines. **Suresh Babu, A. R.**, Raghunathan. R, Madhivanan. R, Ompraba. G, Velmurugan. D, Raghu. R. *Current Chemical Biology* **2008**, 2, 312-320.
10. An easy access to novel steroidal dispiropyrrrolidines through 1,3-dipolar cycloaddition of azomethine ylides. **Suresh Babu, A. R.**; Raghunathan, R. *Tetrahedron Letters* **2008**, 49, 4621-4623.
11. Synthesis of ferrocenyl monospirooxindolopyrrolidines: a facile [3+2]-cycloaddition of azomethine ylides. **Suresh Babu, A. R.**; Raghunathan, R. *Tetrahedron Letters* **2008**, 49, 4487-4490.
12. Synthesis, characterisation and anti-microbial activity of novel dispirooxindolopyrrolizidines. **Suresh Babu, A. R.**, Raghunathan. R, Kumaresan, K.; Raaman, N. *Current Chemical Biology* **2009**, 3, 112-123.
13. TiO₂ mediated one-pot four component 1,3-dipolar cycloaddition reaction: A facile synthesis of dispiro-pyrrolidine ring systems. **Suresh Babu, A. R.**; Raghunathan, R. *Synthetic Communication* **2009**, 39, 347-354.
14. A facile synthesis of ferrocene grafted *N*-methyl spiropyrrrolidines through 1,3-dipolar cycloaddition of azomethine ylides. **Suresh Babu, A. R.**; Raghunathan, R. *Tetrahedron Letters* **2009**, 50, 2818-2821.
15. An expedient synthesis of ferrocene grafted spirooxindolopyrrolizidines via [3+2]-cycloaddition of azomethine ylides. **Suresh Babu, A. R.**; Raghunathan, R, Sundaribaskaran. *Tetrahedron* **2009**, 65, 2239-2243.
16. An expedient synthesis of C-3-ferrocenoyl-*N*-methylpyrrolidines via [3+2]-cycloaddition reaction of azomethine ylides. **Suresh Babu, A. R.**; Raghunathan, R. *Synthetic Communication* **2009**, 39, 2889-2894.
17. Solvent-free microwave expediated synthesis of ferrocenylchalcones and ferrocenyl-1,5-diketones using hydrotalcites. Naresh Raj. A. R.; Hussaini S. S.; Huq, C. A. M. A.; **Suresh Babu. A. R.** *J. Ind. Chem. Soc.* **2009**, 86, 1218-1223.
18. A promising method for efficient analysis of secondary metabolites in plant extracts by a matrix-free Desorption/ionization on self-assembled monolayer

- surfaces (DIAMS) technique. **Suresh Babu, A.R.**; Tsagueken, G.; Ropivia, J.; Helexbeux, J. J.; Derbre, S.; Seraphin, D.; Dias, M.; Rondeau, D. ; Levillain, E. ; Richomme, P. *Planta medica*. **2009**, *75*, 1041.
19. A facile one-pot synthesis of ferrocene based spiro-pyrrolidines/pyrrolizidines through 1,3-dipolar cycloaddition reaction. **Suresh Babu, A. R.**; Raghunathan, R. *Synthetic Communication* **2010**, *40*, 2311-2319.
 20. Synthesis of chlorin fused monospirooxindolo-pyrrolidines-a facile [3+2]-cycloaddition of azomethine ylides. Saravanan, P, **Suresh Babu, A. R.**; Raghunathan, R. *Synthetic Communication* **2010**, *40*, 2329-2335.
 21. A Clean and expedient synthesis of Pyrido[1,4]-oxazepino-spiropyrrolidines through one-pot three component-[3+2]-cycloaddition reaction. Kathiravan, S; **Suresh Babu, A. R.**; Raghunathan, R. *Synthetic Communication* **2010**, *40*, 3721-3727.
 22. Triazolobithiophene Light Absorbing Self-Assembled Monolayers: Synthesis and Mass Spectrometry Applications. Ghislain Tsague Kenfack, Andreas Schinkovitz, **Suresh Babu. A. R** , Kamal Elouarzaki, Marylène Dias, Séverine Derbré, Jean-Jacques Helesbeux , Eric Levillain , Pascal Richomme and Denis Séraphin. *Molecules* **2011**, *16*, 8758-8774.
 23. A facile synthesis of novel ferrocene grafted spiro-indenoquinoxaline pyrrolizidines *via* one-pot multicomponent-[3+2]-cycloaddition of azomethine ylides. **Suresh babu A. R**, Gavaskar, D.; Raghunathan, R. *Tetrahedron Letters* **2012**, *53*, 6676-6681.
 24. An expedient ultrasonic-assisted one-pot four component synthesis of novel ferrocene grafted pyrrolidine heterocycles *via* [3+2]-cycloaddition of azomethine ylides. **Suresh babu A. R**, Gavaskar, D.; Raghunathan, R. *Journal of Organometallic Chemistry* **2013**, *745-746*, 409-416.
 25. An expedient one-pot sequential five component synthesis of highly substituted spiro-pyrrolidine-heterocycles. Gavaskar, D.; **Suresh babu A. R**, Raghunathan, R. *Tetrahedron Letters* **2014**, *55*, 2217- 2220.
 26. Ionic liquid accelerated multicomponent sequential assembly of ferrocene grafted spiro-heterocycles. Gavaskar, D.; **Suresh babu A. R**, Raghunathan, R.

Dharani, M.; Balasubramanian, S. *Journal of Organometallic Chemistry* **2014**, (Accepted)

LIST OF PUBLICATIONS IN OTHER INTERNATIONAL JOURNALS

27. Spiro-[2.3']-oxindole-spiro-[3.3']-oxindole-4-[*p*-methoxybenzoyl]-pyrrolizidine. Seshadri, P. R., Selvanayagam, S., Velmurugan, D., Ravikumar, K., **Suresh Babu, A. R.**, Raghunathan, R. *Acta. Cryst.* **2003**, E59, o1458-o1460
28. 2'-(*p*-Methoxybenzoyl)-1',2,2',3,4',5',6',6a-octahydro-1H-indan-2-spiro-3'(3'H pyrrolizidine)-1'-spiro-3''-1H-indoline-1,2'',3-trione. Seshadri, P. R., Selvanayagam, S., Velmurugan, D., Ravikumar, K., **Suresh Babu, A. R.**, Raghunathan, R. *Acta. Cryst.* **2003**, E59, o1559-o1560.
29. 2'-Benzoyl-1',2,2',3,4',5',6',6a-octahydro-1H-indan-2-spiro-3'-(3'H-pyrrolizidine)-1'-spiro-3''-1H-indoline-1,2'',3-trione. Seshadri, P. R., Selvanayagam, S., Velmurugan, D., Ravikumar, K., **Suresh Babu, A. R.**, Raghunathan, R. *Acta. Cryst.* **2003**, E59, o1783-o1785.
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LIST OF ARTICLE SUBMITTED IN INTERNATIONAL JOURNALS

1. A facile one-pot synthesis of novel dispiro-acenaphthenone-dipyrrolo-piperazine scaffolds through 1,3-dipolar cycloaddition of azomethine ylides. **Suresh babu A. R.**, Gavaskar, D.; Raghunathan, R. *Tetrahedron letter* **2014** (submitted in April-2014).

LIST OF NATIONAL & INTERNATIONAL CONFERENCES PARTICIPATED

1. Presented a poster at 5th National Symposium in Chemistry (NSC-5), 2003 held at Chennai, India and 6th National Symposium in Chemistry (NSC-6), 2004 held at Kanpur, India.
2. Presented a poster at 7th National Symposium in Chemistry (NSC-7), 2005 held at Kolkatta, India and Attended International Symposium in Chemistry, 2005 held at NCL (National Chemical Laboratory), Pune, India.
3. Presented an article in the National Conference on "Recent Trends on Medicinal Plants Research"- 2007 held at Centre for Advanced Studies in Botany, University of Madras, Chennai, India during 24-25th January, 2007.
4. Participation in a symposium- 1^{ere} Journee des doctorants de l'IFR QUASAV held on 11th December-2008, in University of Angers, Angers, France.
5. Presented an article at XVI Journee Jeunes Chercheurs conference conducted by Societe De Chemie Therapeutiques-France, at University of Paris, Descartes, Paris, France on 5th February-2009.

6. Presented an article at 57th International Congress and annual meeting of the GA held at Geneva, Switzerland during 16-20th August-2009.
7. Participation in a International mini-symposium-graphene chemistry meets physics and biology; on 18th November-2013, at ISIS, (Institut de Science et d'Ingenierie Supramoleculaires), University of Strasbourg, France.

REFERENCES

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