

## Curriculum Vitae

**Dr. D. Rama Sekhara Reddy**  
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**Department of Chemistry**  
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**Ph.D., and over 3 years of Post Doctoral Research and 7 Years of Teaching experience**

### Research Interests

**Natural Products & Synthetic Chemistry.**

### Academic Profile

- **2005 – 2009 : Ph.D. Organic Chemistry**, from Andhra University, Visakhapatnam, Andhra Pradesh, India.
- **1999-2001:** Master of Science, **M.Sc. Organic Chemistry** from Acharya Nagarjuna University, Guntur, Andhra Pradesh, INDIA.
- **1995-1998:** Bachelor of Science **B.Sc.** Botany, Zoology and Chemistry as major subjects from Sri Venkateswara University, Tirupathi, Andhra Pradesh, INDIA.

### Positions Held

- 1. Assistant Professor – (Mar 2013 – to date)**  
Department of Chemistry, Krishna University, Machilipatnam, A.P, **INDIA.**
- 2. Assistant Professor – (2012 – 2013)**  
Department of Chemistry, Gitam University, Visakhapatnam, A.P, **INDIA.**
- 3. Post Doctoral Research Associate – (2011 - 2012)**  
Centre for Pharmacology, Pharmaceuticals and Pharmacology, I-AIM, Bangalore, K.A, **INDIA.**  
  
**Title :** 1. "Evaluation of Ayurvedic Logic behind the concept of Substitutions for Unavailable Herbs". 2. "Identification and Critical Inter-Cultural and Modern Pharmacognostic & Pharmacological Analysis of Traded substitutes & Adulterants of Dasamula group of Plant Raw Drugs".
- 4. Post Doctoral Fellow – (2009 - 2011)**  
Institute of Biological Chemistry, Washington State University, Pullman, WA, **USA.**  
  
**Title:** "Study on identifying the non-extractable, non-lignin aromatic components formed at the Early Stage of developmental growth in *Arabidopsis*".
- 5. Executive - R & D Department – (2004-2005)**  
Research & Development Department, M.S.N. Laboratories Ltd., Hyderabad, **INDIA**
- 6. Synthetic Organic Chemist – (2001-2004)**  
Research & Development Department for **Aurobindo Pharma Ltd.**, Hyderabad, **INDIA**

## Overview

➤ International Publications	: 05
➤ National Publications	: 04
➤ International Symposia/Conferences	: 10
➤ National Symposia/Conferences	: 25
➤ International Workshops /Training Programmes	: 02
➤ National Workshops /Training Programmes	: 09
➤ Orientation Course	: 01

## Administrative Experience

1. Coordinator for Department of Chemistry, Krishna University (2013-till date)
2. Board of Studies member for Chemistry in AG&SGS Degree College of Arts & Science, Vuyyuru (2014-16)
3. Board of Studies member for Science, Technology & Development paper under BOS in AG&SGS Degree College of Arts & Science, Vuyyuru (2014-16)
4. Board of Studies member for Chemistry in Swarnandhra College of Engineering & Technology, Narsapur (2014-16)
5. Board of Studies member for Chemistry in P. B. Siddhartha College, Vijayawada (2013-15)
6. Board of Studies member for Chemistry in Montessori Mahila Kalasala, Vijayawada (2013-15)
7. Team Manager for East Zone Inter-Collegiate Cricket Tournament (2014)
8. Member in Furniture purchase Expert Committee (2014)
9. Member in Electrical & Electronic purchase Expert Committee (2014)
10. Editor for International Journal of Advanced Research in Chemical Sciences (ISSN 2349-039X, Special Issue Vol 2 Issue 2(A)).

## Teaching Experience

1. **(Mar 2013- Till date) Asst. Professor**, Department of Chemistry, Krishna University, Machilipatnam, AP. (General Chemistry, Natural Products Chemistry, Organic Chemistry, Laboratory Tools and Techniques).
2. **(2012-2013) - Assistant Professor**, Department of Chemistry, Gitam Institute of Technology, Gitam University, Visakhapatnam, A.P, **INDIA**.
3. **(2005-2009) Laboratory Instructor & Sectional Lecturer**  
Natural Products Chemistry extractions and separations, Laboratory instructions and procedures to M.Sc. students.

## Research Experience

- Since 2001

### Fields of Research Interests:

- Medicinal chemistry
- Terrestrial natural products
- Synthetic Organic Chemistry and Synthetic Methodologies.

My research interests center on the synthesis of biologically active lignans. They include: i) Isolation and characterization of lignans from various plant species, ii) Semi-synthetic transformation of less potent natural products to possibly bioactive compounds, iii) multi-step organic synthesis and development of new synthetic methodologies. iv) Designing chemical synthetic approach for the bio-active natural products.

## Post Doctoral Projects

**Post-doctoral Research Associate: (2011– 2012) *Institute of Ayurveda & Integrative Medicine, INDIA.***

### **Project 1: "Evaluation of Ayurvedic Logic behind the concept of Substitutions for Unavailable Herbs".**

Experienced and involved in the projects such as "National R&D Facility for Rasayana products of Indian Systems of Medicine" and "Evaluation of Ayurvedic Logic behind the concept of Substitutions for Unavailable Herbs". Isolation and identification of the marker compounds from Ayurvedic, medicinal plants and plant products funded by NMPB, AYUSH.

### **Project 2: "Identification and Critical Inter-Cultural and Modern Pharmacognostic & Pharmacological Analysis of Traded substitutes & Adulterants of Dasamula group of Plant Raw Drugs".**

My research was focused in the evaluation of standard Ayurveda collection protocols of Indian medicinal plants in relation to seasonal variations. These include the qualitative and quantitative analyses of raw samples and describe the principal phytochemical components, active principles and localization of secondary compounds through histochemistry and analytical techniques.

**Post-Doctoral Fellow: (2009 – 2011) *Washington State University, USA.***

### **Project 3: "Study on identifying the non-extractable, non-lignin aromatic components formed at the Early Stage of developmental growth in *Arabidopsis*".**

My research focused in the multi-step synthesis of various target molecules on scales ranging from a few milligrams to multi hundred grams. These include complex lignans, neolignans, monolignols and lignin precursors which are essential to study the bio-chemical pathways and also which are helpful for the lignin degradation studies. I have worked on the project related to optimization of lignin-degradation mechanisms *in vitro*.

Developed a novel metathesis reaction for synthesis of polar groups substituted styrene compounds from the monolignols, (coniferyl, *p*-coumaryl, sinapyl and cinnamyl alcohols) and propenyl phenols such as isoeugenol, anethole and *p*-anol with Grubbs catalyst.

I am involved in the projects such as "Study on identifying the non-extractable, non-lignin aromatic components formed at the Early Stage of developmental growth in *Arabidopsis*" and also "Product Diversification Strategies for a New Generation of Biofuels/ Bioproducts".

## Thesis /Dissertations

**Doctoral Fellow:** (2005 – 2009) *Andhra University, INDIA.*

**Research Supervisor:** Prof. R.Venkateswarlu, Professor, Department of Organic Chemistry, Andhra University, Visakhapatnam, India.

**Thesis Title:** "Transformations of naturally occurring lignans: Synthesis of  $\beta$ -hydroxy lactol and lactones, 10-acetamido dibenzocyclooctadiene, 4-amino podophyllotoxin analogue, and tetrahydrodiphyllin".

Focused in the chemical synthesis of various types of possibly bioactive and novel lignans such as 1-aryltetralins, dibenzocyclooctadienes, spirodienones, lactols, lactones and neo-lignans (1-arylindanes). These compounds have potential to be developed as therapeutic drugs/supplements. Developed a novel method for chemical transformation of naturally occurring furofuran lignan namely gmelinol isolated from *Gmelina arborea* (Linn.) into various lignans through hydrogenolysis (Birch reduction) and oxidative coupling reactions with DDQ in acetic acid and trifluoroacetic acid media. These reactions illustrate the facile interconversion of the different lignan series under oxidative conditions and lend support to the mechanistic pathways proposed for the chemical and biochemical generation of more complicated lignan types from the parent dibenzylbutane skeleton.

Developed a novel Lewis acid-catalyzed rearrangement of gmelinol to the synthesis of 'spiro' compounds with unique lignan skeleton. Worked on the oxidative and reductive rearrangements of dibenzocyclooctadiene, spirodienone lignans for the efficient synthesis of a unique oxygen-bridged dibenzocyclooctadienone and cyclohexadienone lignans. These reactions provide a method for the preparation of novel lignan spirodienone derivative which have the potential for the introduction of an amino function into the lignan skeleton.

Isolation of various bioactive molecules from some medicinal plants and screened for their biological activities. Analogs were developed for *Dyphyllin* and *Gmelinol* and screened their biological activity.

## Industrial Experience

**2004 – 2005**

➤ **Executive - R & D Department** (*M.S.N. Laboratories Ltd*)

**Company Profile:** is an FDA approval Company and also a Bulk Drug Unit which is having export and local marketing.

Worked as an Executive in Research & Development Department for **M.S.N. Laboratories Ltd.**, Hyderabad from April 2004 to Jan 2005. (<http://www.msnlabs.com/>)

**2001-2004**

➤ **Synthetic Organic Chemist** (*Aurobindo Pharma Ltd*)

**Company Profile:** is an FDA approval Company and also a manufacturing and exporter of Bulk Drugs, Drug Intermediates, Sterile Bulk Drugs, Formulations and Oral Pharmaceutical Bulk Drugs.

Worked as a team member in Research & Development Department for **Aurobindo Pharma Ltd.**, Hyderabad from Sept 2001 to March 2004. (<http://www.aurobindo.com/>)

### Organizing Seminars

1. Organised DST, CSIR & APSCHE funded Two Day National Seminar on "*The Role of Natural Product Chemistry in Drug Discovery*" by Krishna university at Vijayawada during September 11-12<sup>th</sup>, **2014 as Organizing Secretary & Treasurer.**
2. Organized UGC Sponsered Two Day National Seminar on "*Recent Trends in Synthetic Organic & Natural Product Chemistry*" at Noble College, Machilipatnam during February 20-21, **2015 as Organizing Chairman-Technical Committee.**
3. Organizing member for Various Seminars/events organized by Krishna University

### BOOKS

1. Editor for UGC Sponsored National Seminar Proceedings entitled "**Recent Trends in Synthetic Organic & Natural Product Chemistry**".

### Membership

- Life member, Indian Science Congress Association
- Life member, Indian Council of Chemists
- Life member, International Society of Teachers and Researchers in Chemistry
- Life Member, Association of Chemistry Teachers

### Fellowships and Awards

- Junior Research Fellow (DST Project) - 2005-2007.
- Senior Research Fellow (DST Project) - 2008-2009.
- Postdoctoral Fellowship from Department of Biological Chemistry (NIH), Govt of USA, Jun 2009-May 2011.
- Postdoctoral Fellowship from Department of Science and Technology, Govt of India, Sep2011-Sep2012.

### Refresher course / Orientation Programmes

- 3 weeks training programme on "Faculty Development Programme" at GITAM University from 21<sup>st</sup> December 2012 to 12<sup>th</sup> January **2013.**

### Extracurricular Activities

- "**C**" Certificate in **NCC** (Naval Wing) as **Cadet Captain** Rank in **1998.**
- Best Marching Award, **1998.**
- Participated in the Traffic safety programme at Nellore From 5-11 January **1998.**
- "**B**" Certificate in **NCC** (Naval Wing) in **1997.**
- Participated in National Ship attachment Camp, Cochin. **1997.**
- Participated in Golden Jubilee of India's Independence Parade at Nellore on 15<sup>th</sup> August **1997.**
- Participated in NCC Day camp at Secunderabad From 13-24 November **1997.**
- Participated in Combined annual training camp-VII at Kavali, From 20-31 December **1997.**
- Participated in combined annual training camp-VI at Kakatur, From 30 Nov-11 Dec **1996.**
- Participated in combined annual training camp-II at Kakatur, From 7-18 November **1995.**