

## **Curriculum Vitae**

**I. Ibnusaud, M.Sc, Ph. D.(IITM)**

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### **Personal Details**

Permanent Address : Thameem Manzil,  
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**Address for Communication** : **Director and Professor of Organic Chemistry**  
Institute for Integrated Programmes and  
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# Professional and Academic background

**Established the Institute for Integrated Programmes and Research in Basic Sciences in the campus of M. G. University in 2008 and was the Director from 2008**

- Current position** : **Director and Professor of Organic Chemistry**  
Institute for Integrated Programmes and  
Research in Basic Sciences (IIRBS)  
Mahatma Gandhi University
- 2006 - 2009 : Associate Professor  
School of Chemical Sciences  
M. G. University, Kottayam
- 2002 – 2006 : Reader  
School of Chemical Sciences  
M. G. University, Kottayam
- 1993(July) : Lecturer  
School of Chemical Science,  
M.G University, Kottayam.

## Education

- 1986-1991 : **Ph.D.** (Synthetic Organic Chemistry)  
Indian Institute of Technology (**IIT**), Madras.
- 1988 : National Eligibility Examination - **CSIR, JRF**, March 1988
- 1985 : Common Examination for Research Admissions (**CERA**)  
(For IIT Admissions)
- 1983-1985 : **M.Sc.** Chemistry  
N.E.H.U. (Central University) Shillong

## Research contribution at M. G. University

At M.G.university (1993), Dr.Ibnusaud initiated research work **in the synthesis of enantiopure compounds (epc synthesis) using chiral building blocks obtained from** regional resources; an area different from his PhD work. Efficient methods have been developed for the isolation of (2*S*,3*S*) and (2*S*,3*R*)-tetrahydro-3-hydroxy-5-oxo-2,3-furandicarboxylic (garcinia and hibiscus) acids in a kilogram scale and these molecules have been converted to chiral six carbon frame work related to chiral  $\gamma$ -buterolactones such as *bis*-lactones, pyrrolidines and fuopyrans, otherwise difficult to synthesize. Thus for the first time, title acids have been employed as chirons and added to the existing select list of chiral molecules obtained from the chiral pool. This area of Research work is totally different for the research areas of the PhD or the PDF work. Prof.Ibnusaud and his group developed his own organic chemistry utilizing naturally occurring chiral molecules obtained from locally available plant sources. For the first time among Universities in Kerala, he obtained **6 US and 12(+5) Indian patents** from the research work exclusively done at M.G.university. All his research has been published in leading journals, such as **J.Nat.prod., J.Phys.Chem.A. Eur.J.Org.Chem, Tet.Lett., and Tetrahedron.** He has executed 7 major research projects and established a state of the art research facility (including first major instrument, NMR, procured for the University through IRHPA), which extend service to this region's research community.**11 students obtained their PhD Degree under his supervision** and four more are doing their Research work. In addition he has been guiding around 90 MSc and MPhil (together) students for their project work. He is the only person working in the area of organic synthesis (synthesis of natural products) among Universities in Kerala.

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## Major Research Projects Undertaken

1. Synthesis of few Medicinally Important Chiral Molecules Derived from Renewable Resources  
**DST, Govt. of India, Project No.SR/S1/OC-98/2012 dated 07.03.2013.**
2. Ex-chiral pool synthesis towards few molecules of Anticancer &Anti-tuberculosis Likeness.  
**CSIR Project No. 02(0101)/12/EMR-II dated 31.10.2012.**
3. Synthesis of Enantiomer Compounds Employing Renewable Resources, **KSCSTE-SARD Project No.1832/AVII/2/2015/Admn dated 31.03.2015.**
4. Asymmetric Transformations Employing (-Hydroxycitric acid)  
**DST (Govt. of India) Project No.: SP/S1/G-07/95/PR.**
5. EPC Synthesis Using Naturally Occurring -Butyrolactones: First Synthesis of Funebrine, Funebral and PLA<sub>2</sub> Inhibitors Cinatrin C<sub>2</sub>, C<sub>3</sub>; Short and Practical Synthesis of flavour Components of aged Alcoholic Beverages,  
**DST, Govt. of India Project No.: SR/S1/OC-47/2003.**
6. A chiral pool protocol towards the synthesis of molecules for chiral discrimination. **DST, Govt. of India. Project No.: SR/S1/OC-54/2007.**
7. DST Inter University NMR Facility (IRPHA Scheme)  
**DST, Govt. of India Project No.: IR/S1/CU/01/2007(ongoing)** Institute for Intensive Research in Basic Sciences (IIRBS) (Previously known as UCIPR). President's Mission Project, Govt. of Kerala (2008).

## International Assignment

1. **Scientific observer** to the Indian team of 38<sup>th</sup> International Chemistry Olympiad held at Gyeongsan, Korea during July 2<sup>nd</sup>-11<sup>th</sup>, 2006
2. **Distinguished Invited Scientist** (Brain Korea Programme) Pusan National University, Korea 2006-2007
3. **Visiting Scientist** University of Texas in Arlington, USA, 2009

## Countries visited (Academic)

- 2004 : **New York University, USA**, 16<sup>th</sup> International symposium in chirality (Chirality 2004), July 11-14, 2004 (9<sup>th</sup> July -21 July) **Best paper award**
- 2005 : **Parma, Italy**, 17<sup>th</sup> International symposium in Chirality (Chirality 2005), Sep.11-14, 2005 (9<sup>th</sup> Sep-17<sup>th</sup> Sep)
- 2006 : **Busan, Pusan national University, Korea**, Distinguished Invited Scientist, (BrainKorea-21) (23 June - 11 July)
- 2006 : **Busan**, 18<sup>th</sup> International Symposium on Chirality (ISCD-18), June 25-28
- 2006 : **Gyeongsang National University, Jinju, Korea** Scientific presentation, Nov 29<sup>th</sup> (Nov 3-dec 31)
- 2007 : **San Diego, CA, USA**, 19<sup>th</sup> International Symposium on Chirality (ISCD-19), July 8-11 (7<sup>th</sup> July-16<sup>th</sup> July)
- 2008 : **Geneva Switzerland**, 20<sup>th</sup> International symposium on Chirality (ISCD – 2008), July 6-9 (5<sup>th</sup> July-11<sup>th</sup> July)
- 2009 : **Colorado, USA**, 21<sup>st</sup> International symposium on Chirality (ISCD – 2009), July 12- 15
- 2009 : **Department of Chemistry and Biochemistry, University of Texas, Arlington, USA**, Visiting Scientist, 16<sup>th</sup> June -22<sup>nd</sup> July
- 2010 : **Vanderbilt University, Nashville, USA**, Resource person, Summer workshop, June 7-9 (5<sup>th</sup> June-12<sup>th</sup> June)
- 2010 : **Sapporo, Japan**, 22<sup>nd</sup> International symposium on Chirality (ISCD – 2010), July 12-15 (9<sup>th</sup> July-17<sup>th</sup> July)
- 2011 : **Liverpool, UK**, 23<sup>rd</sup> International symposium on Chirality (ISCD 2011), July 10-13
- 2012 : **Purdue University, USA**, Boron Americas XIII, June 3-9 (1<sup>st</sup> June-16<sup>th</sup> June)
- 2012 : **Fort Worth, Texas, USA**, 24<sup>th</sup> International symposium on Chirality (ISCD 24), June 10-13
- 2014 : **Dallas, Texas, NJ, USA**, ACS Meeting, March 16-20

2014

: Rutgers, The State University of New Jersey, NJ, USA, BORON AMERICAS XIV (BORAM), to chair a session and scientific presentation, June 15<sup>th</sup> -19<sup>th</sup>

## Research Guide

No. of Ph.D.'s produced : Eleven

No.	Title of the thesis
1.	Structural and Synthetic Investigations on (2 <i>S</i> ,3 <i>S</i> -Tetrahydro-3-Hydroxy-5-Oxo-2,3-Furandicarboxylic Acid (Dr.Tom Thomas Puthiapampil, 2000)
2.	Studies on (2 <i>S</i> ,3 <i>R</i> -Tetrahydro-3-Hydroxy-5-Oxo-2,3-Furandicarboxylic Acid-Preparation of Chirons (Dr.Rani R. Nair, 2001)
3.	Synthesis and Catalytic studies of chiral-4-(2-hydroxy-2,2-diarylethyl)-2,2-dimethyl- $\alpha$ , $\alpha'$ , $\alpha''$ -tetraaryl-1,3-dioxolane-4,5-dimethanols. (Dr.Beena Thomas, 2001)
4.	Studies on Hydroxycitric Acid Lactones- Synthesis of Chiral Pyrrolidines (Dr.Grace Thomas, 2003)
5.	EPC Syntheses Employing (2 <i>S</i> , 3 <i>S</i> ) - and (2 <i>S</i> , 3 <i>R</i> ) - Tetrahydro-3-Hydroxy-5-Oxo-2, 3-Furandicarboxylic Acids: - Syntheses of Analogues of Quararibea Metabolite Chiral Enolic- $\gamma$ -Lactone. (Dr.Chitra Gopinath, 2006)
6.	Studies Towards the Synthesis of few Biologically Active Chiral $\gamma$ -Butyrolactone Based Molecules Employing 2-Hydroxycitric Acid Lactones (Dr.Salini Thomas, 2006)
7.	Synthetic studies on Chiral $\gamma$ -Butyrolactone systems.(Mrs. Susan Varughese,2009)
8.	Studies on Chiral Catalysis Employing optically Active Hydroxycitric acids(Dr.P.V.Sasi,2011)
9.	Chiral Pool Approach Towards The Synthesis Of Few Optically Active $\gamma$ -Butyrolactone Based Natural Products(Dr.Simimole H., 2015)
10.	Investigations on the Synthesis of Few Chiral $\gamma$ -Butyrolactone Based Pyrrolidines (Dr. Deenamma Habel, 2016)
11.	Synthetic Investigations on Chiral Pyrrolidine Based Molecules of Drug-Likeness Employing (2 <i>S</i> ,3 <i>S</i> ) and (2 <i>S</i> ,3 <i>R</i> )- Tetrahydro-3-Hydroxy-5-Oxo-2,3-Furandicarboxylic acids (Dr. Divya S Nair, 2016)

No. of Ph.D.'s supervising : Four

No. of M.Phil awarded : Ten

# **Patents Obtained from the work done at Mahatma Gandhi University Kottayam**

**Unique distinction of obtaining six US patents and twelve Indian patents from the work done at Mahatma Gandhi University utilizing regional resources**

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## **Course and Curriculum structure designed**

- 1. Course and Curriculum structure designed for Five year Integrated PhD Programme, IIRBS 2012.**
  - 2. Course and Curriculum structure designed for Five year Integrated MS Programme, IIRBS 2009.**
  - 3. Course and Curriculum structure designed for MSc. Chemistry, School Chemical Sciences 1995.**
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## **Member, Board of Studies**

- 1. Member, Board of studies of MSc. Chemistry, School of Chemical Sciences, M. G. University.**
  - 2. Member, Board of studies of MSc. Chemistry (PG) in M. G. University.**
  - 3. Member, Research Advisory Committee , Malabar Cancer Centre, Thalassery**
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## **Institution Builder**

**Instrumental in establishing the following intellectual and Physical infrastructures in the campus of Mahatma Gandhi University**

- 1. Institute for Intensive Research in Basic Sciences (IIRBS) was established in the campus of M.G University , utilizing NABAD funding**
  - 2. A state of the art instrumentation facility and synthetic organic Chemistry laboratory have been established (NMR facility- first major instrument of the campus / DST funding)**
  - 3. For the first time among the Universities in Kerala a unique Five year Integrated MSc. Programme was designed and launched in the campus of Mahatma Gandhi University**
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## Publications and Patents

1. Controlled Reduction of Diastereomeric Garcinia and Hibiscus Acids by Judicial Use of Boron Reagents Authors: Prasanth C P; Simimole H; Sachinraj K C; Abhijith A; Deenamma Habel; Bakthan Singaram; Ibrahim Ibnusaud(*Manuscript submitted*)
2. Capillary zone electrophoresis for the analysis of naturally occurring 2-hydroxycitric acids and their lactones Authors: B. L. Abhijith<sup>1</sup>, Moolya Mohan<sup>1</sup>, David Joseph<sup>1</sup>, Hassan Y. Aboul-Enein<sup>2\*†</sup>, Ibrahim Ibnusaud<sup>1\*</sup> DOI: 10.1002/jssc.201700192, *Journal of Separation Science* 2017
3. Palladium-Catalyzed  $\alpha$ -Arylation Reactions in Total Synthesis; Sudheesh T. Sivanandan, Ashna Shaji, **Ibrahim Ibnusaud**, Carin C. C. Johansson Seechurn and Thomas J. Colacot, *Eur. J. Org. Chem.* 2015, 38–49 (Impact Factor: 3.154)
4. Synthesis of enantiopure furo[2,3-b]pyrroles, Nair, D.S.; Ibnusaud, I.; *Tetrahedron Letters*, 2014, 55, 5822 - 5824 (Impact Factor: 2.391)
5. Enantiomerically pure compounds related to chiral hydroxy acids derived from renewable resources: *RSC Adv.*, 2012, 2, 9257-9285., Simimole Haleema, Paleapadam Vavan Sasi, **Ibrahim Ibnusaud**, Prasad L. Polavarapu and Henri B. Kagan (Impact Factor: 3.8)
6. Chiroptical spectroscopy of Natural products: Avoiding the Aggregation of Chiral Carboxylic Acids, *J. Nat. Prod.*, 2012, 75, 1441–1450; Prasad L. Polavarapu, Emily Donahue, Ganesh Shanmugam, **Ibrahim Ibnusaud**, Divya S. Nair, Chithra Gopinath and Deenamma Habel (Impact Factor: 3.947)
7. Polavarappu, Prasad; Donahue, Emily; Shanmugam, Ganesh; Scalmani, Giovanni; Hawkins, Edward; Rizzo, Carnelo; **Ibrahim Ibnusaud**; Thomas, Grace; Habel, Deenamma; Sebastian, Dellamol; A single chiroptical spectroscopic method may not be able to establish the absolute configuration of diastereomers: Dimethyl esters of Hibiscus and Garcinia Acids. *J. Phys. Chem. A* 2011, 115, 5665–5673 (Impact Factor: 2.775)
8. Prasad L. Polavarapu, Giovanni Scalmani, Edward K. Hawkins, Carnelo Rizzo, Neha Jeirath, **Ibrahim Ibnusaud**, Deenamma Habel, Divya Sadasivan Nair and Simimole Haleema; Importance of solvation in understanding the chiroptical spectra of natural products in solution phase: Garcinia acid dimethyl ester, *J. Nat. Prod.*, (ACS), 2011, 74, 321-328. (Impact Factor: 3.947)
9. Susan Varghese, Salini Thomas, Simimole Haleema, Tom Thomas Puthiaparambil and **Ibrahim Ibnusaud**; Synthesis of enantiopure concave(+) -avenaciolide and (-) -canadensolide skeletons, *Tetrahedron Letters*, 2007, 48, 8209-8212. (Impact Factor: 2.391)
10. Chithra Gopinath, Salini Thomas, Mangalam S. Nair and **I. Ibnusaud**; Analogues of Quararibea Metabolite chiral enolic  $\gamma$ -lactones from (2*S*, 3*S*) and (2*S*, 3*R*)-tetrahydro-3-hydroxy-5-oxo-2, 3-furandicarboxylic acid. *Tetrahedron Letters*, 2006, 47, 7957-7960 Impact Factor: 2.772



11. **Ibnusaud, I.** and Grace Thomas; biologically interesting chiral 3, 4-disubstituted pyrrolidines from optically active hydroxycitric acid lactones. **Tetrahedron Letters**, **2003**, *4*, 1247-1249 CAN 139:245844
12. **Ibnusaud, I.**; Thomas, T.P.; Rani, R.N.; Sasi, P. V.; Beena T.; Hisham, A. K. Chiral  $\gamma$ -Butyrolactones related to optically active 2-hydroxycitric acids. **Tetrahedron** **2002**, *58*, 4887-4892
13. **Ibnusaud, E.J.P.** Malar and N. Sundram, Synthesis and Diels-Alder Reaction of Stable Aryl free 1, 3-Diazabutadiene. **Tetrahedron Letters**, **1990**, *31*, 7357 CAN 114:164138
14. S.N. Muzumbar, **Ibnusaud** and M.P. Mahajan, Diels-Alder Cyclo Addition Reactions of 1,3-Diazabutadiene with Ketenes. **Tetrahedron Letters**, **1986**, *27*, 5875. CAN 106:213891
15. **Ibnusaud, I.**, Gopinath, C., Thomas, B. Chiral Derivatives of Hibiscus acid bearing lactone ring moiety, process for preparing the same and a convenient method for the large scale isolation of Hibiscus acid. **U.S. Patent No. 6,703,515**, (9<sup>th</sup> March **2004**) CAN 138:369115.
16. **Ibnusaud, I.**, Nair, R. R.; Philip, T; Thomas, S. A convenient method for large-scale isolation of hibiscus acid. **U. S. Patent no. 6, 127, 553** (3<sup>rd</sup> October **2000**) CAN 133:271625.
17. **Ibnusaud, I.**; Thomas, G; Sasi, P.V. A Novel Chiral derivatives of Garcinia acid bearing lactone ring moiety and process for preparing the same. **U. S. Patent no. 6, 489,492B2** (3<sup>rd</sup> December, **2002**) CAN 137:247883.
18. **Ibnusaud, I.**, Nair, R. Novel Acyclic chiral derivatives of hibiscus acid and the process for preparing the same. **U. S. Patent no. 6, 489,493B2** (3<sup>rd</sup> December, **2002**) CAN 136:325781.
19. **Ibnusaud, I.**, Thomas P.T. Acyclic chiral compound from Garcinia acid and process for preparing the same. **U. S. Patent no. 6, 706, and 899** (16<sup>th</sup> March **2004**) CAN 136:295022.
20. **Ibnusaud, I.**, Thomas T. P., Thomas, B. A convenient method for the large scale isolation of garcinia acid. **U. S. Patent no. 6, 147, 228** (14<sup>th</sup> November **2000**) CAN 133:335435.
21. **Ibnusaud, I.**, Nair, R. R.; Philip, T; Thomas, S. A convenient method for large-scale isolation of hibiscus acid. **Indian patent no: 189745** (23<sup>rd</sup> January **2004**).
22. **Ibnusaud, I.**, Thomas T. P. Thomas, B. A convenient method for large-scale isolation of garcinia acid. **Indian patent no. 190387** (27<sup>th</sup> January **2004**).
23. **Ibnusaud, I.**, Thomas P.T. Novel Acyclic Chiral compounds from Garcinia acid and process for preparing the same. **Indian patent no. 192500**
24. **Ibnusaud, I.**, Nair, R. R. Novel acyclic chiral derivatives of hibiscus acid and the process for preparing the same. **Indian patent no. 192949**
25. **Ibnusaud, I.**, Gopinath, C.; Thomas, B. Novel Chiral Derivatives of Hibiscus acid bearing lactone ring moiety and process for preparing the same.

**Indian patent no: 192481.**

26. **Ibnusaud, I.**; Thomas, G.; Sasi, P.V. Novel Chiral derivatives of Garciniaacid and a process for preparing the same. **Indian patent no. 192471.**
27. **Ibnusaud, I.**, Thomas P.T. Novel Acyclic Chiral compound ofGarcinia acid bearing lactone ring moiety and process for preparing the same. **Indian patent no. 1427/Del/03,2003**
28. **Ibnusaud, I.**, Nair, R. R. A process of preparing acyclic chiral triesters; **Indian patent no. 1452/Del/04,2004**
29. **Ibnusaud, I.**,Gopinath, C.;Thomas, B. A Process of Preparing Novel Chiral compound of Hibiscus acid bearing lactone ring moiety, **Indian patent no. 1425/Del/03, 2003**
30. **Ibnusaud, I.**;Thomas,G.; Sasi, P.V. A process of preparing novel chiral derivatives of Garcinia acid bearing Lactone Moiety **Indian patent no. 1426/Del/03, 2003**
31. **Ibrahim Ibnusaud** and Sarath Muralidharan Pillai. Enatiopure total synthesis of indolizinoindole alkaloid (+) harmicine and (-) harmicine from (2*S*,3*R*)-Tetrahydro-3-hydroxy-5-oxo -2,3-furandicarboxylic acid (Hibiscus acid ) and (2*S*,3*S*)-Tetrahydro-3-hydroxy-5-oxo -2,3-furandicarboxylic acid(Garcinia acid ) **Indian Patent No 3682/CHE/2016 .**
32. Synthesis of(*R*)-(+)-Crispine Aand(*S*)-(-)-Crispine A from(2*S*,3*R*)- and (2*S*,3*S*)-Tetrahydro-3-hydroxy-5-oxo-2,3-furandicarboxylic acids, Divya Sadasivan Nair, Deenamma Habel and **Ibrahim Ibnusaud, Indian Patent No. 3484/CHE/2016**
33. Anumol.S, Tharique Ahammed Ansari N, Prasanth C.P, Zabeera K.T and **Ibrahim Ibnusaud.** Synthesize of Tosyl Chiral derivatives of (2*S*, 3*S*) and (2*S*, 3*R*)-tetrahydro-3-hydroxy-5-oxo-2,3-furandicarboxylic acids(Garcinia and Hibiscus acids) for the synthesis of Medicinally important Molecules..  
**Indian patent Application No: 00/CHE/2016**
34. Reductions of Ester Groups Using NaBH<sub>4</sub> in Protic Solvents Under Ambient Conditions: Controlled reduction of Diastereomeric Garcinia and Hibiscus acid Esters to the Corresponding Alcohols” by Simimole H., Prasanth C. P., Sachin Raj K. C., Bakthan Singaram and Ibrahim Ibnusaud( Communicated)

**Manuscript under preparation: 5 Nos.**

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## **Paper Presentation / Lecture given in International Conferences (2004-2017)**

(Incomplete)

1. “Molecular crafting with (2*S*,3*S*)- and(2*S*,3*R*)-Tetrahydro-3-Hydroxy-5-Oxo-2,3-Furandicarboxylic Acids”. **Plenary lecture**, Book of Abstract **International Conference on Tropical Plants & Molecular Design (Quilon)14-15 Feb 2017**

2. "Synthetic exploration of chiral molecules of natural origin employing Boron reagents." Prasanth C. P., Simimole H., Grace Thomas., Ebbin Joseph., Bakthan Singaram ‡ and Ibrahim Ibusaud, **Plenary lecture**, Book of Abstract, **New Trends in Applied chemistry (NTAC 2017)** (Cochin) **9-11 Feb 2017**
3. "Synthesis of enantiopure molecules using Molecules obtained from Regional resources" I.Ibusaud, **Invited Lecture**, Proceedings of National Seminar, Recent Advances in Chemical Sciences (RACS-17) Trivandrum-March 13<sup>th</sup> and 14<sup>th</sup> 2017.
4. <sup>11</sup>B NMR Spectroscopy Based Mechanistic Insight into Reduction Reactions of Hydroxyacid esters" **Ibrahim Ibusaud, BORON AMERICAS XIV (BORAM)**, Rutgers, The State University of New Jersey, NJ, US to be held on June 15<sup>th</sup> -19<sup>th</sup> **2014**. Chaired a session and presented a paper.
5. "Synthesis of enantiopure 3-substituted, 3, 4-disubstituted pyrrolidinediones and related isoquinoline alkaloid"; Divya S. Nair, Deenamma Habel, Grace Thomas, and **Ibrahim Ibusaud, ACS Meeting** March 16-20, 2014, Dallas, Texas
6. Ex-Chiral pool synthesis of Chiral 4-(2-Hydroxyethyl) pyrrolidine-3-ol: a potent anti-tuberculosis agent, Ibrahim Ibusaud, 24<sup>th</sup> International symposium on chiral Discrimination ISCD24, **Fort Worth, Texas** on June 10-13, 2012
7. Semi synthetic production of potential enantiomerically pure molecules employing Boranes and Borohydride Reagents, I.Ibusaud\*, H.Simimole, Divya S Nair and K.C SachinRaj, Boron Americas XIII, **Purdue University USA**, June 3-9 2012
8. A novel class of chiral phosphine ligand based on (2S,3S) – Tetrahydro-3-hydroxy-5-oxo-2,3-furan dicarboxylic acid, I.Ibusaud, S. Anumol and Ashna Shaji (**ISCD – 2011**) University of Liverpool, Liverpool, UK. Presented on 10<sup>th</sup> July to 13<sup>th</sup> July 2011).
9. Renewable resources for the syntheses of enantiomerically pure molecules related to chiral 2-Hydroxy Citric Acids 22<sup>nd</sup> International symposium on Chirality (**ISCD – 2010**) **Sapporo, Japan**, July 12-15 2010.
10. Lecture offered at summer workshop on "Chiral Molecular Determination and Analysis" June 7-9, 2010 **Vanderbilt University, Nashville, USA**.
11. Enantiomerically Pure compound Synthesis Using Chiral  $\gamma$ -butyrolactones-A Green approach 21<sup>st</sup> International symposium on Chirality (ISCD – 2009) **Colorado, USA**.
12. Chiral pool protocol towards this synthesis of molecules for chiral discrimination. **20<sup>th</sup> International symposium on Chirality (ISCD – 2008) Geneva Switzerland** during July 6<sup>th</sup> – 9<sup>th</sup>, 2008.
13. Out sourcing chiral  $\gamma$ -butyrolactones for the synthesis of (+) phaseolinic acid, (+) Nephromopsisric acid,  $\beta$ -hydroxyparaconic acid, (4R,5R)-4,5-dimethyldihydro-2(3H)-furanone. The 19<sup>th</sup> International Symposium on Chirality (ISCD-19), **San Diego, CA, USA** during 8<sup>th</sup>-11<sup>th</sup> July 2007
14. Chiral pool approach towards the synthesis of chiral butyrolactone based molecules. **Gyeongsang National University, Jinju, Korea**, 29<sup>th</sup> Nov. 2006.

15. Synthesis of Natural products a green approach, Department of chemistry, **Pusan national University, Pusan, Korea. Dec. 2006**
16. Access to Analogues of (+)-Avenaciolide and (+)-Canadensolide and Quararebia Metabolite chiral enolic  $\gamma$ -butyrolactone: The 18<sup>th</sup> International Symposium on Chirality (ISCD-18). **Busan, Korea during 25<sup>th</sup>-28<sup>th</sup> June 2006**
17. 17th International symposium in Chirality (chirality 2005), **Parma, Italy** during September 11-14, **2005**.
18. Synthesis of Enantiomerically pure  $\gamma$ -butyrolactone based molecules-A Green Approach. 16<sup>th</sup> international symposium in chirality (Chirality 2004), **New York University, New York** during July 11-14, **2004**

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## Paper Presentation / Lecture given in National Conferences

(Incomplete)

1. "Chiral molecules from renewable resources Synthesis of chiral pyrrolidines and related (+)-Crispine A analogue", Deenamma Habel, Divya S. Nair, Grace Thomas, Arshad Sayed, and **Ibrahim Ibnusaud**, **IACT Meeting 2013**, November 7-9 at **Annamalai University**, Chidambaram, Tamil Nadu.
2. Enantiomerically Pure Molecules Employing Renewable Regional Resources, **Ibrahim Ibnusaud**, **National Conference on green and sustainable Chemistry, Thumkur University**, Karnataka 25<sup>th</sup> Feb. 2012.
3. "Enantiomerically Pure Molecules of Biological and Functional Interest Related to 2-hydroxycitric acids";, **Ibrahim Ibnusaud**, 14<sup>th</sup> National Symposium in chemistry & 6<sup>th</sup> **CRSI-RSC Symposium in Chemistry, NIIST**, Trivandrum, February 2-5, 2012.
4. Ex-Chiral pool synthesis towards butyrolactone based molecules of agro-pharmaceuticals and functional interests: A green approach, Sasi P.V, Simimole H and **Ibrahim Ibnusaud**, **11<sup>th</sup> National Convention of Chemistry Teachers (NCCT-2011) & National Seminar on Emerging Trends in Green Chemistry**, Dept. of Chemistry, **A.N College, Patna**, India, Oct. 15-17, 2011
5. Ex-Chiral pool synthesis of Chiral 4-(2-Hydroxyethyl) pyrrolidine-3-ol: a potent anti-tuberculosis agent, Arshad Sayed M.V, Grace Thomas and **Ibrahim Ibnusaud**, **Medicinal Chemistry Conference on Anti-Infective Drug Discovery and Development**, Dept. of Chemistry, **IIT, Madras**, Oct. 28-29, 2011.
6. Semisynthetic route towards therapeutically active  $\alpha$ -methylene- $\gamma$ -butyrolactones, Sudheesh T.S and **Ibrahim Ibnusaud**, **Medicinal Chemistry Conference on Anti-Infective Drug Discovery and Development**, Dept. of Chemistry, **IIT, Madras**, Oct. 28-29, 2011.
7. A modified Antibiotic Based on (2S,3S) -Tetrahydro-3-Hydroxy-5-Oxo-2,3-Furandicarboxylic Acid and 6-Aminopenicillanic Acid, Surya.K and **Ibrahim Ibnusaud**, **Medicinal Chemistry Conference**

- on Anti-Infective Drug Discovery and Development**, Dept. of Chemistry, **IIT, Madras**, Oct.28-29, 2011.
8. "Tropical Plants and Chirality"; **Ibrahim Ibnusaud**, **National Conference on Emerging Advances in Chemistry (NCCT 2009)** organized by Gayatri Vidya Parishad, Visakhapatnam and Indian Association Of Chemistry Teachers held at **Visakhapatnam** during Nov.13-15, **2009**.
  9. Indian Association of Chemistry Teachers held at **Garhwal, UP** during Nov.13-15, 2008.
  10. Phytochemical potential of tropical vegetation, **Ibrahim Ibnusaud**, **National symposium on herbal products**; held at Sri Sankara College at **Kalady**, during Feb 8-10, 2007.
  11. 3-Substituted Pyrrolidinedione Based Chiral Molecular Clefs, **Ibrahim Ibnusaud 8<sup>th</sup> National Symposium in chemistry**(CRSI) held at **IIT Bombay** during Feb.3-5, **2006**
  12. IPR and R&D Tuning Research for Development. International Seminar on India and the New Global Intellectual Property Rights (IPR) Regime, **Ibrahim Ibnusaud**, held at School of International Relations and Politics, **M. G. University**, Kottaym during 2-4<sup>th</sup> August **2006**.
  13. Tropical Plants and Chirality, **Ibrahim Ibnusaud**, **2<sup>nd</sup> International conference on Organic synthesis and process chemistry**( OSPC-2005) held at **IICT**, Hyderabad
  14. Isocitric and analogue of Avenaciolide from (2S, 3S) - Tetrahydro-3-Hydroxy-5-Oxo-2, 3-Furandicarboxylic Acid, **Ibrahim Ibnusaud**, **7<sup>th</sup> National Symposium in chemistry**(CRSI) held at **IACS Kolkata** during Feb.4-6 2005
  15. Photochemical potential of traditional plants, **Ibrahim Ibnusaud** ,**World Ayurvedic Conference** Cochin.**2003**
  16. National symposium in chemistry (CRSI), **2003**. **CLRI** Chennai.
  17. "Research and Patenting" **Ibrahim Ibnusaud** ,at **Patent Facilitating Centre (PFC) TERI –Retreat, New Delhi. 2003**.
  18. "Patenting- M. G. University Experience" **Ibrahim Ibnusaud** ,Centenary Patent awareness workshop organized by **Department of Science and Technology, New Delhi, 2003**
  19. Fourth National symposium in chemistry, (CRSI), Feb 1-3, **2002**, **NCL** Pune.
  20. "Synthesis with Naturally Occurring Entities" **Ibrahim Ibnusaud** , Recent Advances in Chemical Sciences, **National conference on Frontiers in Chemical Research, 2002**, held at **M.G. University**, Kottayam.
  21. "Chiral  $\gamma$ -Butyrolactone and related molecules" **Ibrahim Ibnusaud**, at SIF, **Indian Institute of Science**, Bangalore on May 2, **2002**
  22. Third national symposium in chemistry, **Ibrahim Ibnusaud** ,(CRSI), Feb 2-4, **2001**, **Punjab University**, Chandigarh
  23. Second National Symposium in Chemistry, **Ibrahim Ibnusaud** (CRSI), Jan, 27-29, **2000**, **IICT** Hyderabad.

24. Structural and Synthetic Investigations on (2S, 3S) – Tetrahydro-3-Hydroxy-5-oxo-2,3-Furandicarboxylic Acid., **Ibrahim Ibnusaud** ,SIF, **Indian Institute of Science, Bangalore 2000.**
25. Chiral  $\gamma$  butyrolactones and related molecules, **Ibrahim Ibnusaud** , SIF, **Indian Institute of Science, Bangalore, 2000.**
26. Group monitoring meeting DST. Jan. 19, **1999**, IACS Calcutta.
27. National Symposium in Chemistry **IISc, Bangalore. 1999.**
28. **3<sup>rd</sup>** National Conference on Trends in Drugs and Pharmaceutical research Global scenario Oct. 4-5, **1998, College of Pharmaceutical Sciences, Manipal.**
29. National Conference on Chemistry and Biology of Herbal Medicine, Jan 30-31, **1997, CDRI, Lucknow.**
30. Effect of 4-Sulfonic Calix (8) arene in Organic Reactions Involving Aquo-Organic Binary Systems, **Ibrahim Ibnusaud** ,**National Symposium on Emerging Trends in Organic Chemistry**, Nov. 18-19-**1996 RRL Trivandrum.**
31. (-) – Hydroxycitric Acid – A Source for Chiral  $\gamma$ -Butyrolactone, **Ibrahim Ibnusaud**, National Symposium on Emerging Trends in Organic Chemistry, Nov. 18-19-1996 **RRL Trivandrum**
32. A Novel Synthesis of Bis(Aryl) hepta – 1, 6-diene –3, 5-diones., New Horizons in Organic Synthesis (IUPAC, - Post ICOS – 10 Symposium) Dec. 19-20-**1994, RRL Trivandrum.**

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## Refresher Course

1. Renewable Resources for the synthesis of Enantiomerically pure molecules. T K M College **Kollam, 2013.**
2. Renewable Resources for the synthesis of Enantiomerically pure molecules. **M G College Trivandrum, June 22, 2012.**
3. Innovation in Science Pursuit for DST Inspire Research Camp, **S.H College, Thevara, Kochi, Kerala, India, 12 Sept. 2012.**
4. “The art of Scientific Research”, **School of Bio Sciences, M G University, July 05, 2011.**
5. “Pharmaceutical Industry and Chirality” at **SME, Kottayam, Feb. 24<sup>th</sup>, 2011.**
6. Asymmetric Synthesis, Navathy Celebration and International Year of Chemistry 2011, I.Ibnusaud, **S.B College, Changanacherry, Kottayam, Kerala, Oct.14, 2011.**

7. "Renewable Resources for the Synthesis of Enantiomerically pure molecules", **NIIST**, Trivandrum 22 June 2011.
8. "Pharmaceutical Industry and Chirality", **SME**, Kottayam, 2<sup>nd</sup> Feb. 2011.
9. Tropical Plants and Chirality Synthesis of enantiomerically pure compounds Natural products of agro pharmaceutical interest and functional molecules for chiral discrimination. **Govt. College for Women, Trivandrum**. June. 21, 2010.
10. Tropical Plants and Chirality:"Synthesis of enantiomerically pure compounds Natural products of agro pharmaceutical interest and functional molecules for chiral discrimination", **St. Thomas College, Pala**. Aug. 12, 2010.
11. "Patenting Inventions", **Kannur University**, Feb. 2002.
12. Tropical Plants and Chirality Synthesis of enantiomerically pure compounds Natural products of agro pharmaceutical interest and functional molecules for chiral discrimination. **Govt. College for Women, Trivandrum**. June. 21, 2010.
13. A Life In Science Education, Science and Scope, **Maharajas College, Ernakulam**. Feb 08, 2008.
14. "Doing Science with Natural Resources", **St. Stephen's College, Uzhavoor** Nov. 05, 2008.
15. Phytochemical potential of tropical vegetation.Lecture offered at the **National symposium on herbal products**;held at **Sri Sankara College at Kalady**, during Feb 8-10,.2007.
16. "A life in Science Education and Scope" at **College of Applied Science, Mallappally**, Sept. 19, 2007.
17. "Microbial Product of Organic Molecules",K. E College Mannanam 2006.
18. "First Sudhakarn Memmorial Lecture" at **C. M. S. College**, Kottayam, 2005.
19. "Value Addition to Natural Products" **St. Stephen's College**, Pathanapuram, Nov.2006.
20. UGC sponsored refresher course -"Patenting Inventions" **Alphonsa College**, Pala, Oct. 2002.
21. UGC sponsored refresher course, **Govt. Victoria College**, Palakkad, Nov. 1999.

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**Resource Person Research Generation Camp, International Chemistry Olympiad, HBCS, TIFR-Mumbai**

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## Meetings/Workshops/Seminars Organized (Incomplete)

1. Coordinated Expert committee meeting (young scientist scheme of DST, Govt. of India) in the area of Chemical sciences on **05-07 Jan.2017**.

2. State coordinator Nobel Laureate Academic visit to Kerala (2016)

### *Coordinated the conduct of Nobel lectures by Prof. Ei-ichi Negishi at*

1. SRIBS, Trivandrum,

2. TKM College, Kollam,

3. SB College Changanacherry,

4. St. Thomas College Pala,

5. CMS College Kottayam,

6. S.H College Thevara Cochin

3. Organized an International Symposium on **Concurrent Methodologies in Organic Synthesis** during February 13<sup>th</sup> 2016, Kottayam.

4. **Coordinated National Level Young Scientists Meeting** under DST - Fast Track, 16<sup>th</sup> – 17<sup>th</sup> January 2015

5. **National Workshop on "NMR Spectroscopy"**, 10<sup>th</sup> - 13<sup>th</sup> September 2014.

6. **Workshop on High Performance Liquid Chromatography (HPLC)**, 4<sup>th</sup> & 5<sup>th</sup> November 2013.

7. Lecture on "Boron and Gadolinium Neutron Capture Therapy for cancer treatment", 16<sup>th</sup>-17<sup>th</sup> December 2012.

8. Seminar on Research and Development in Chemical Process Development, 22<sup>nd</sup> Sept., 2012

9. Workshop on "Computational Chemistry", May 28<sup>th</sup> - 31<sup>st</sup>, 2012

10. Science Academies' Lecture Workshop -"Quantum Mechanics, Molecular -Resonance Spectroscopy And Hands-On Experience in Spectroscopy", March 1<sup>st</sup> – 3<sup>rd</sup>, 2012

11. Workshop on "Basic Principles and applications of Computational Chemistry", May 23<sup>rd</sup> - 27<sup>th</sup>, 2011 at IIRBS

12. CSIR - Open Source Drug Discovery (OSDD) meeting held on 02.07.2011 at IIRBS office.

13. CSIR - Open Source Drug Discovery (OSDD) meeting held on 24<sup>th</sup> June 2011 at head office Delhi.



14. **Local coordinator**, DST (Govt. of India) Programme Advisory committee-Organic chemistry meeting held at Mahatma Gandhi University, Kottayam during feb.29<sup>th</sup> –March 1<sup>st</sup> 2008.
15. **Coordinator**, Sixth National Convention Of Chemistry Teachers (NCCT-2006) , Mahatma Gandhi University Kottayam. October 28<sup>th</sup>-30<sup>th</sup> 2006.
16. **Coordinator**, Resource Generation Camp for Innovative Teaching and Research in Chemistry Conducted at St. Thomas College Palai, in Collaboration with **Homi Bhabha Centre for Science Education** and Indian Association of Chemistry Teachers during 6-7<sup>th</sup> January 2006.
17. Convener, Patent Awareness workshop Conducted at Mahatma Gandhi University at the instance of TIFAC, DST in 2001.
18. Seminar on Research and Development in Chemical Process Development, 22<sup>nd</sup> Sept., 2012.
19. Application of Magnetic Resonance Spectroscopy in scientific research.,10<sup>th</sup> Sept.2012
20. Seminar on Metal Mediated Organic Synthesis, 4<sup>th</sup> Sept.2012
21. Capacity Building in Scientific Research by Dr.Syriac Joseph Palackal,10<sup>th</sup> August.,2012
22. Seminar – A review on Renewable Energy Technologies, 17<sup>th</sup> July., 2012
23. One day seminar - Organic Chemistry and Pharmaceutical Industry, 24<sup>th</sup> April, 2012
24. Seminar on Application of two dimensional NMR in the structural elucidation of biomolecule.
25. Summer Workshop on Computational chemistry, May 28th - 31st, 2012
26. Workshop on Advanced Materials Characterization Techniques, 21st - 25th May, 2012
27. Science Academies' Lecture Workshop on Quantum Mechanics, Molecular- Resonance Spectroscopy and Hands-on Experience in Spectroscopy, March 1 – 3,2012.
28. English Language Skill Workshop, December 22 – 23, 2011.
29. Seminar on Genetic Structure of Indian Jewish Diaspora, October 27 – 28, 2011.
30. Workshop on Organometallic Chemistry, August 23- 26, 2011.
31. Seminar associated with new student orientation programme, Sept.02, 2011.
32. Workshop on Basic Principles and Applications of Computational Chemistry, May 23- 27, 2011
33. Seminar on “Pharmaceutical Process Chemistry”, May 17, 2011

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## **Training/Enrichment courses attended**

1. National School on new dimension to NMR from molecules to human behavior. **Conducted by NMR Research centre Indian Institute of Science, Bangalore, May 12-17, 2008.**
2. Chiral Chromatography: Analytical & Preparative **Sheraton Hotel and Marina, San Diego, USA, July 2007**
3. NMR and Chiroptical Spectroscopy Methods for studying Chirality **Sheraton Hotel and Marina, San Diego, USA, July 2007**
4. The 1<sup>st</sup> BK21 Workshop on Materials Chemistry 2006 **Department of Chemistry, Pusan National, University(Nov.17,2006)**
5. Chirality and the Pharmaceutical Industry: Past, Present and Future **Pusan National University, Korea, June 2006**
6. A survey of Chiral Selectors for Enantioselective LC **Pusan National University, Korea, June 2006**
7. Chiroptical Analysis of Drugs and Biologically Active Compounds **Pusan National University, Korea, June 2006**
8. Supercritical Fluid and Preparative LC Enantiomeric Separations **Pusan National University, Korea, June 2006**
9. Spectroscopic Methods for the Investigation of Chiral Compounds **Parma University, Parma Italy, 2005**
10. Context of Modern Stereochemistry **New York University, New York, 2004).**
11. Indo-US workshop on Green Chemistry **Green Chemistry Institute, Delhi, 2003.**

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## **Collaborating Institutions**

1. University of California , Santa Cruz, USA
  2. Vanderbilt University, USA
  3. University of Texas in Arlington, USA
  4. Functional Materials Division, Pusan National University, Busan, Korea
  5. University of Paris Sud, France.
  6. Johnson Matthey, New Jersey, USA
  7. Universite de Lyon , France
  8. National Research Centre, Dokki, Cairo, Egypt
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*Edited A book entitled Traditional and scientific knowledge of Tropical spices (in Press).*