

## Dinesh Mohanakrishnan

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### Research Interest

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Discovery of new antimalarial and antimicrobial drugs from nature and chemical libraries, High-throughput method development for antimalarial drug screening.

### Research Experience

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- **National Institute of Malaria Research , New Delhi, India**  
**Research Associate:** Metabolic changes and Immune responses of drug combination therapies in mouse model malaria.  
*Duration:* Aug 201 – Nov 2018
- **International Centre for Genetic Engineering & Biotechnology (ICGEB), India**  
**Research Associate:** Drug repurposing and target based drug discovery against malaria. Metabolic changes of drug combination therapies in mouse model malaria.  
*Duration:* Dec 2017 – Aug 2018
- **International Centre for Genetic Engineering & Biotechnology (ICGEB), India**  
**Pre Doctoral Fellow:** Antiplasmodial and antimalarial properties of various classes of chemically synthesized small molecules including Chalcones, Stilbenes, Stilbene-Chalcone hybrids, Indoles, Quinolines, Azoles, Pyrimidines, Aplysins and Cryptolepines. Also the study focused the mechanistic and pharmacokinetic properties of potent molecules including stage specificity, kill kinetics, Mode of drug action, Combination studies and ADME studies. Interestingly, one of our study concluded that the **cryptolepines** killed the parasite by **inhibiting parasite endocytosis process**.  
*Duration:* Aug 2012 – June 2017
- **International Centre for Genetic Engineering & Biotechnology (ICGEB), India**  
**Junior and senior Research Fellow:** Evaluation of antiplasmodial and antimalarial properties of various classes of chemically synthesized small molecules, plant and marine organism extracts, microbial secondary metabolites. And also we purified and identified **lamellarin**, an active antiplasmodial compound from **marine organisms** using HPLC and column chromatography techniques.  
*Duration:* Jan 2009 – July 2012
- **Bharathidasan University, India**  
**Project Trainee:** We have studied the anticancer activities of Metal (II) Complexes against different cancer cell lines. The study includes screening and mode of action.  
*Duration:* Dec 2007 – June 2008

### Academic Chronicle

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- **International Centre for Genetic Engineering & Biotechnology (ICGEB)/ Jawaharlal Nehru University, India**  
PhD, October 2017
- **School of Life Sciences, Bharathidasan University (BDU), Tiruchirappalli, India**  
Master of Science in Animal Biotechnology, 2006-2008
- **Muthayammal College of Arts and Science, Periyar University, Salem, India.**  
Bachelor of Science in Biotechnology, 2003-2006

## Fellowships

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Indian Council of Medical Research - Senior Research Fellowship award (2012 -2015)

## Publications

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### Total number of publications: 23

1. Kumar R, **Mohanakrishnan D**, Sharma A, Kaushik NK, Kalia K, Sinha AK, Sahal D. Reinvestigation of structure activity relationship of methoxylated chalcones as antimalarials: Green Synthesis and evaluation of 2,4,5-trimethoxy substituted patterns as lead candidates derived from abundantly available natural  $\beta$ -asarone. *Eur J Med Chem.* **2010.** 45(11):5292-5301. **(IF: 4.519)**
2. Bagavan A, Rahuman AA, Kamaraj C, Kaushik NK, **Mohanakrishnan D**, Sahal D. Antiplasmodial activity of botanical extracts against Plasmodium falciparum. *Parasitol Res.* **2011.** 108(5):1099-109 **(IF: 2.329)**
3. Kumar RS, Riyasdeen A, **Dinesh M**, Paul CP, Srinag S, Krishnamurthy H, Arunachalam S, Akbarsha MA. Cytotoxic property of surfactant-cobalt(III) complexes on a human breast cancer cell line. *Arch Pharm (Weinheim).* **2011.** 344(7):422-30. **(IF: 1.994)**
4. Sharma A, Sharma N, Shard A, Kumar R, **Mohanakrishnan D**, Saima, Arun K. Sinha and Sahal D. Tandem allylic oxidation-condensation/esterification catalyzed by silica gel: an expeditious approach towards antimalarial diaryldienones and enones from natural methoxylated phenylpropenes. *Organic & Biomolecular Chemistry.* **2011.** 9(14):5211-9. **(IF: 3.564)**
5. Kamaraj C, Kaushik NK, **Mohanakrishnan D**, Elango G, Bagavan A, Zahir AA, Rahuman AA, Sahal D. Antiplasmodial potential of medicinal plant extracts from Malaiyur and Javadhu hills of South India. *Parasitol Res.* **2012.** 111(2):703-15 **(IF: 2.329)**
6. Sharma, N\*, **Mohanakrishnan D\***, Shard A, Sharma A, Malik S, Sinha, A, Sahal D. Stilbene-Chalcone Hybrids: Design, Synthesis and Evaluation as a New Class of Antimalarial Scaffolds that Trigger Cell Death through Stage Specific Apoptosis. *J Med Chem.* **2012.** 55: 297-311. (\* Equal contribution) **(IF: 6.259)**
7. Kamaraj C, Kaushik NK, Rahuman AA, **Mohanakrishnan D**, Bagavan A, Elango G, Zahir AA, Santhoshkumar T, Marimuthu S, Jayaseelan C, Vishnu Kirthi A, Rajakumar G, Velayutham K, Sahal D. Antimalarial activities of medicinal plants traditionally used in the villages of Dharmapuri regions of South India. *J Ethnopharmacology.* **2012.** 141(3): 796-802. **(IF:2.981)**
8. Prajapati SP, Kaushik NK, Zaveri M, **Mohanakrishnan D**, Kawathekar N, Sahal D. Synthesis, Characterisation and Antimalarial Evaluation of New  $\beta$ -Benzoylstyrene Derivatives of Acridine. *Arabian Journal of Chemistry.* **2012.** 10(1): S274-S280 **(IF: 4.553)**
9. Kaushik NK, Bagavan A, Rahuman AA, **Mohanakrishnan D**, Kamaraj C, Elango G, Zahir AA, Sahal D. Antiplasmodial potential of selected medicinal plants from eastern Ghats of South India. *Exp Parasitol.* **2013.** 134(1):26-32. **(IF:1.724)**
10. Maruthanayagam V, Nagarajan M, **Mohanakrishnan D**, Sahal D and Sundararaman M. Antiplasmodial activity of extracts of twenty five cyanobacterial species from coastal regions of Tamil Nadu. *Pharmaceutical Biology.* **2014.** 52(10):1291-301. **(IF: 1.916)**
11. Sharma N\*, **Mohanakrishnan D\***, Sharma UK, Kumar R, Richa, Sinha AK and Sahal D. Design, economical synthesis and evaluation of antiplasmodial properties of natural vanillin-based allylated chalcones and their marked synergistic effect with artemisinin

- against chloroquine resistant strains of Plasmodium falciparum. *Eur J Med Chem.* **2014.** 79:350-68. (\* Equal contribution) **(IF: 4.519)**
12. Mane UR, **Mohanakrishnan D**, Sahal D, Murumkar PR, Giridhar R, Yadav MR . Synthesis and biological evaluation of some novel pyrido[1,2-a]pyrimidin-4-ones as antimalarial agents. *Eur J Med Chem.* **2014.** 79:422-35. **(IF: 4.519)**
  13. Singh N\*, Kaushik NK\*, **Mohanakrishnan D\***, Tiwari SK, Sahal D. Antiplasmodial Activity of Medicinal Plants from Chhotanagpur Plateau, Jharkhand, India. *Journal of Ethnopharmacology.***2015.** 165:152-62. (\* Equal contribution) **(IF: 2.981)**
  14. Sharma N, **Mohanakrishnan D**, Sharda A, Sharma A, Sinha AK and Sahal D. Hydroxylated di- and tri-styrylbenzenes, a new class of antiplasmodial agents: discovery and mechanism of action. *RSC Adv,* **2016.** 6, 49348-49357 **(IF: 3.108)**
  15. Okokon JE, Augustine NB, **Mohanakrishnan D**. Antimalarial, antiplasmodial and analgesic activities of root extract of Alchornea laxiflora. *Pharm Biol.* **2017.** 55(1):1022-1031. **(IF: 1.916)**
  16. Okokon JE, Antia BS, **Mohanakrishnan D**, Sahal D. Antimalarial and antiplasmodial activity of husk extract and fractions of Zea mays. *Pharm Biol.* **2017.** 55(1):1394-1400. **(IF: 1.916)**
  17. Okokon JE, Obot AU, **Mohanakrishnan D**, Mittal G, Sahal D. Antimalarial and Antiplasmodial Activity of Leaf Extract of Alchornea laxiflora. *Journal Of Herbs, Spices & Medicinal Plants.***2017.** 23(2): 128-141
  18. Okokon JE, Sahal D, **Mohanakrishnan D**, Okokon P. Antimalarial Activities of Zea mays Leaf Extract in Ethanol and Selected Solvent Fractions. *Journal of Herbs Spices & Medicinal Plants.* **2017.** 23(4), 334-346.
  19. Nadia NAC , Wabo Pone J , Arlette NT , **Mohanakrishnan D** , Mittal G , Sahal D and Mbida M. In vitro Antiplasmodial and Antioxidant Activities of Entandrophragma cylindricum (Meliaceae) Extracts. *European Journal of Medicinal Plants.* **2017.** 21(1), 1-9
  20. Amlabu WE, Nock IH, Kaushik NK, **Mohanakrishnan D**, Tiwary J, Audu PA, Abubakar MS, Sahal D. Exploration of antiplasmodial activity in Acalypha wilkesiana Müller Argoviensis, 1866 (family: Euphorbiaceae) and its GC-MS fingerprint. *Parasitol Res.* **2018.** 117(5):1473-1484. **(IF: 2.329)**
  21. Sharma UK\*, **Mohanakrishnan D\***, Sharma N, Equbal D, Sahal D, Sinha AK. Facile synthesis of vanillin-based novel bischalcones identifies one that induces apoptosis and displays synergy with Artemisinin in killing chloroquine resistant Plasmodium falciparum. *Eur J Med Chem.* **2018.** 155:623-38. (\* Equal contribution) **(IF: 4.519)**
  22. Joshi BP\*, **Mohanakrishnan D\***, Mittal G\*, Kar S, Pola JK, Golakoti NR, Nanubolu JB, Babu DR, Kumar SS, Sahal D. Synthesis, mechanistic and synergy studies of diarylidencyclohexanone derivatives as new antiplasmodial pharmacophores. *Medicinal Chemistry Research* 27 (10), 2312-2324. (\* Equal contribution) **(IF: 1.607)**
  23. Mudududdla R\*, **Mohanakrishnan D\***, Bharat SS, Vishwakarma RA, Sahal D, Bharate SB. Orally Effective Aminoalkyl 10H-Indolo-[3,2-b]quinoline-11-carboxamide Kills the Malaria Parasite by Inhibiting Host Hemoglobin Uptake. *ChemMedChem.* 2018. Accepted (\* Equal contribution) **(IF: 3.225)**

### Scientific Presentations

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- Fluorescence studies indicate that Stilbene - Chalcone hybrids induce stage specific apoptotic cell death in Plasmodium falciparum. **National Fluorescence Workshop, FCS 2011, Delhi.** November 14-18, 2011 (Poster)

- Potent antimalarial cryptolepine kills the malaria parasite by inhibiting host hemoglobin uptake. **International Vaccine Conference and Workshop on Malaria Biology, Delhi.** 27<sup>th</sup> Nov- 1<sup>st</sup> Dec, 2017 (Poster)

### **Workshop & Courses Attended** \_\_\_\_\_

- **National Fluorescence Workshop, FCS 2011, JNU and IIT, Delhi.** November 14-18, 2011
- **Workshop 'International Conference on Drug Design' (ICDD), JNU, Delhi.** April 7-9, 2017
- **FLOW CYTOMETRY COURSE:** Fundamentals and Advanced Concepts of Multicolor Flow Cytometry, Data Analysis and Presentation. **JNSCAR, Bengaluru.** 28th to 30th Dec, 2017.

### **Management & Organization Skills** \_\_\_\_\_

- Project management: Prioritization, coordination, planning and execution of projects and scientific experiments between various Inter and Intra-university research groups(2009-till date)
- Organizing committee member of "INTERNATIONAL WORKSHOP ON DISCOVERY OF NEW DRUGS AGAINST MALARIA. 27th Jan- 6th Feb, 2015.
- Part of ICGEB lab orientation program for the PhD students and mentor for project trainees