


Name	Dr. A. Rajasekar	
Designation	Assistant Professor & DBT-Ramalingaswami Fellow	
Mailing Address	Department of Biotechnology Thiruvalluvar University Serkkadu, vellore -632 115 India	
Academic Qualifications	<p>Ph.D (Microbiology)</p> <p><b>Postdoctoral Research Fellow (PDF)</b>, National University of Singapore (NUS), Singapore (2008 - 2013).</p> <p><b>Ph.D (Microbiology)</b>, Central Electrochemical Research Institute (CECRI-CSIR), Karaikudi, Bharathidasan University, Tamilnadu, India, 2008.</p> <p><b>M.Sc (Microbiology)</b>, Sri Parmakalyani College, Alwarkurichi, Manonmaniam Sundaranar University, India, 2000.</p> <p><b>B.Sc (Biochemistry)</b>, Manonmaniam Sundaranar University, India, 1998.</p>	
Employee number		
Contact Phone -Office		
Contact Phone –Personal	+91-7639186598	
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Teaching Experience : 4 years

Research Experience : 11 years

Research Area/ Specialization(s):

- Microbiologically Influenced Corrosion of aqueous/non-aqueous environments
- Biodegradation and Bioremediation
- Metagenomics
- Bioleaching of precious metals from minerals and waste materials
- Bio-Electrokinetics for waste management
- Airborne bacteria (Aerobiology)

#### Research Guidance/ Supervision

Programmes of Study	Completed	Ongoing
Ph.D	-	06
M.Phil	01	01

### Details of Doctoral Research Students

S.No	Name of the Scholar	Year of the Registration	Broad theme
1	Mr. P. Elumalai, JRF, (DST-SERB) <a href="mailto:2elumalai79@gmail.com">2elumalai79@gmail.com</a>	March, 2014	Applied Environmental Microbiology
2	Mr. P. Parthipan, JRF, (DBT-RLF) <a href="mailto:pparthibiotech@gmail.com">pparthibiotech@gmail.com</a>	March, 2014	Applied Environmental Microbiology
3	Mr. K. Sathishkumar <a href="mailto:ksathish570@gmail.com">ksathish570@gmail.com</a>	December, 2014	Environmental Biotechnology
4	Mr. J. Narenkumar, PF (UGC-MRP) <a href="mailto:narencherry77@gmail.com">narencherry77@gmail.com</a>	January, 2015	Environmental Microbial Biotechnology
5	Mr. R.K. Sarankumar <a href="mailto:rksaran1989@gmail.com">rksaran1989@gmail.com</a>	June, 2016	Environmental Microbiology
6	Mr. S. Selvaraj <a href="mailto:selvampkc@gmail.com">selvampkc@gmail.com</a>	June, 2016	Environmental Microbiology

### Research Papers

Published in International Journals	Published in National Journals	Impact Factor	Presented in International conferences	Presented in National conferences
24	05	50.1	13	18

Total number of publications and their impact factor: **33 and 65**

<https://scholar.google.co.in/citations?user=3izzkwYAAAAJ&hl=en>

<http://www.scopus.com/authid/detail.uri?authorId=55928874800>

### Funded Research Projects (Ongoing)

S.No	Agency	Period		Project Title	Budget (Rs. In Lakhs)
		From	To		
01	DBT	2013	2018	Electrochemical behavior of barophilic and thermophilic bacteria with special reference to petroleum industry	82.00
02	DST-SERB	2013	2016	Biocorrosion behavior of thermophilic/ barophilic bacteria with special reference to petroleum industry	11.20
03	UGC	2015	2018	Microbiological influenced corrosion behavior of aerobic/anaerobic microbial consortia with special reference to petroleum crude oil industry	18.0

Numbers of seminars/ Conferences/ Workshops/ Events attended : 31

Numbers of seminars/ Conferences/ Workshops/ Events Organized : 01

Number of Invited / Special lecture delivered : 04

Number of Books / Chapters / Monographs/ Manuals written : 02

**Achievements/ Awards/ Honours :**

- **Ramalingaswamy Fellowship** awarded by Department of Biotechnology (DBT), Govt. of India, 2013.
- **Young Scientist Award** by SERB, Department of Science and Technology (DST), Govt. of India, 2013.
- **Postdoctoral Research Fellowship** awarded by National University of Singapore (NUS), Tier 1 Research Programme 2008
- **BEST PAPER AWARD** in 12<sup>th</sup> National Corrosion Council of India (NCCI) entitled “Corrosion problems in fire protection system: A case study” held at Visakhapatnam (A.P) from 20, 22-09-2004
- **Senior Research Fellow (SRF)** awarded by CSIR (Council of Scientific & Industrial Research), 2006
- **Young Scientist Award** in International conference on “Converging Biotechnological Innovations for Health, Food and Environmental welfare- ICCBI-2015” organized by Karunya University, Coimbatore from 2-4<sup>th</sup> December 2015
- **Best Oral Presentation Award** in International conference on “Converging Biotechnological Innovations for Health, Food and Environmental welfare- ICCBI-2015” organized by Karunya University, Coimbatore from 2-4<sup>th</sup> December 2015
- **BEST PAPER AWARD** in National seminar on “Frontiers in bioprocess Technology and Microbial Ecology (FBTME-2016) for both Oral/Poster held at Periyar University, Salem (TN) from 28-29<sup>th</sup> January 2016

Membership in Professional /National/ International Bodies: The Association of Microbiologists of India

Countries visited: Singapore, Malaysia, Spain, China, Italy, Poland and Indonesia

**Editorial Board Member:**

1. Recent Patents in Corrosion Science - from: 2009.
2. Frontier in Environmental Science, Section Wastewater Management – from 2013.
3. European Journal of Applied Sciences and Technology (EUJAST) - from 2014.
4. Journal of Environment and Biotechnology Research- from 2015.

**Reviewer in SCI Journal:**

1. Environmental Technology, Bioremediation, Biofouling (Taylor & Francis)
2. Petroleum Science (Springer)
3. Bioresource Technology, Fuel, Journal of Petroleum Science and Engineering, Material Physics and Chemistry (Elsevier)

**Patents – Filed:**

### **Publications in International Journals:**

1. **Rajasekar A**, Karthikeyan OP, Manivannan S and Balasubramanian R (2016) A comparative study of chemical and bacterial leaching of copper from low grade chalcopyrite. *Journal of Environment and Biotechnology Research*. (In Press).
2. Wadood HZ, **Rajasekar A**, Ting YP and Sabari AN (2015) Role of *Bacillus subtilis* and *Pseudomonas aeruginosa* on Corrosion Behaviour of Stainless Steel. *Arabian Journal of Science and Engineering [Springer]* 40, 1825-1836. (Impact Factor 0.36).
3. Karthikeyan OP, **Rajasekar A** and Balasubramanian R (2014) Bio-oxidation and bio-cyanidation of refractory mineral ores for gold extraction: A review. *Critical Reviews in Environmental Science and Technology* 2014. [Taylor & Francis] (Impact Factor: 3.4).
4. **Rajasekar A** and Ting YP (2014) Characterization of corrosive bacterial consortia isolated from water in a cooling tower. *ISRN Corrosion*. Article ID 803219, 11pages [Hindawi Publishing Corporation].
5. Sethurajan M, **Rajasekar A**, Karthikeyan OP and Balasubramanian R (2012) Bioleaching of copper from black shale ore using mesophilic mixed populations in an Airup-lift Bioreactor. *Environmental Engineering and Management Journal* 11, 1839-1848. [Gheorghe Asachi" Technical University of Iasi, Romania] (Impact Factor: 1.4).
6. Balasubramanian R, Nainar P and **Rajasekar A** (2012) Airborne bacteria, fungi, and endotoxin levels in residential microenvironments: a case study, *Aerobiologia* 28, 375–390 [Springer] (Impact Factor: 1.2).
7. **Rajasekar A**, Balasubramanian A and Kumar JVM (2011) Role of hydrocarbon degrading bacteria *Serratia marcescens* ACE2 and *Bacillus cereus* ACE4 on corrosion of carbon steel API 5LX. *Industrial Engineering Chemistry & Research* 50, 10041–10046 [ACS] (Impact Factor: 2.2).
8. **Rajasekar A** and Ting YP (2011) Role of inorganic and organic medium in the corrosion behavior of *Bacillus megaterium* and *Pseudomonas* sp. in stainless steel SS 304. *Industrial Engineering Chemistry & Research* 50 (22), pp 12534–1254 [ACS] (Impact Factor: 2.2).
9. **Rajasekar A** and Ting YP (2011) Inhibition of biocorrosion of aluminium 2024 aeronautical alloy by ladder conductive polymer poly (*o*-phenylenediamine). *Industrial Engineering Chemistry & Research* 50, 2040–2046 [ACS] (Impact Factor: 2.2).
10. Harimawan A, **Rajasekar A and Ting YP** (2011) Bacteria attachment to surfaces - AFM force spectroscopy and physicochemical analyses. *Journal of Colloid and Interface Science* 364, 213–218 [Elsevier] (Impact Factor: 3.2).

11. **Rajasekar** and R.Balasubramanian, Assessment of airborne bacteria and fungi in food courts. *Building and Environment*, (Elsevier) 2011, 46, 2081-2087. IF: 2.2
12. **Rajasekar A** and Ting YP (2010) Microbial corrosion of aluminum 2024 aeronautical alloy by hydrocarbon degrading bacteria *Bacillus cereus* ACE4 and *Serratia marcescens* ACE2. *Industrial Engineering Chemistry & Research* 49(13) 6054 – 60661[ACS] (Impact Factor: 2.2).
13. **Rajasekar A**, Anandkumar B, Maruthamuthu S, Ting YP and Rahman PKSM (2010) Characterization of corrosive bacterial consortia isolated from petroleum product transporting pipelines. *Applied Microbiology and Biotechnology* 85 1175-1188 [Springer] (Impact Factor: 3.6).
14. **Rajasekar A**, Maruthamuthu S and Ting YP (2008) Electrochemical behavior of *Serratia marcescens* ACE2 on carbon steel API5-LX-60 in organic-aqueous phase. *Industrial Engineering Chemistry & Research* 47, 6925-6932 [ACS] (Impact Factor: 2.2).
15. **Rajasekar A**, Ganesh Babu T, Karutha Pandian S, Maruthamuth S, Palaniswamy N and Rajendran A (2007) Biodegradation and corrosion behaviour of *Bacillus cereus* ACE4 in diesel transporting pipeline. *Corrosion Science* 49. 2694-2710 [Elsevier] (Impact Factor: 4.42).
16. **Rajasekar A**, Ganesh Babu T, Karutha Pandian S, Maruthamuth S, Palaniswamy N and Rajendran A (2007) Role of *Serratia marcescens* on diesel degradation and its influence on corrosion. *Journal of Industrial Microbiology and Biotechnology* 34, 589-598. [Springer] (Impact Factor: 2.7).
17. **Rajasekar A**, Maruthamuthu S, Palaniswamy N and Rajendran A (2007) Role of corrosion inhibitor degradation and its influence on corrosion, *Microbiological Research* 162, 355-368. [Elsevier] (Impact Factor: 2.7).
18. **Rajasekar A**, Ganesh Babu T, Maruthamuthu S, Karutha Pandian S, Mohanan S and Palaniswamy N (2007) Biodegradation and corrosion behavior of *Serratia marcescens* ACE2 isolated from Indian diesel transporting pipeline. *World Journal of Microbiology & Biotechnology* 23,1065-1074. [Springer] (Impact Factor: 1.5).
19. **Rajasekar A**, Ponmariappan S, Maruthamuthu S and Palaniswamy N (2007) Bacterial degradation and corrosion of naphtha in transporting pipeline. *Current Microbiology* 55, 374-381. [Springer] (Impact Factor: 1.7).
20. **Rajasekar A** Mohanan S, Maruthamuthu S, Muthukumar N and Palaniswamy N (2007) Biodegradation of palmarosa oil (green oil) by *Serratia marcescens*, *International Journal of Environmental Science and Technology* 4 (2), 277-281 [Springer] (Impact Factor: 3.7).

21. Rajasekar A, Rajendran L, Maruthamuthu S Palaniswamy N and Rajendran A (2006) prediction of corrosion rate of steel AP5LX using curve fitting method. *Zaštita materijala (Material Protection)* 47 (4), 47 -50 (Impact Factor: 2.2).
22. Ramesh babu, **Rajasekar A**, Maruthamuthu S, Muthukumar N and Palaniswamy N (2006) Microbiologically influenced corrosion in dairy effluent plant, *International Journal of Environmental Science and Technology* 3(2), 159-166 [Springer] (Impact Factor: 3.7).
23. **Rajasekar A**, Maruthamuthu S, Muthukumar N, Mohanan S, Subramanian P and Palaniswamy N (2005) Bacterial degradation of naphtha and its influence on corrosion. *Corrosion Science* 47, 257 -271. [Elsevier] (Impact Factor: 4.42).
24. Mohanan S, **Rajasekar A**, Muthukumar N, Maruthamuthu S and Palaniswamy N (2005) Role of fungi on diesel degradation and its influence on corrosion of API 5LX, *Corrosion Prevention and Control* 52 (4), 123-130 [Maney] (Impact Factor: 0.5).

#### **National Journals**

1. Anandkumar B, **Rajasekar A**, Venkatachari G and Maruthamuthu S (2009) Effect of thermophilic sulphate-reducing bacteria (*Desulfotomaculum geothermicum*) isolated from Indian petroleum refinery on the corrosion of mild steel. *Current Science* 97(3), 342-349 [Indian Academy of Science, IISc, Bangalore] (Impact Factor: 0.7).
2. **Rajasekar A**, Maruthamuthu S, Sathiyarayanan S, Muthukumar N and Palaniswamy N Electrochemical behaviour of microbes on orthodontic wires. *Current Science* 89(6), 988-996 [Indian Academy of Science, IISc, Bangalore] (Impact Factor: 0.7).
3. Maruthamuthu S, Mohanan S, **Rajasekar A**, Muthukumar N, Ponmarriappan S, Subramanian P and Palaniswamy N (2005) Role of corrosion inhibitors on bacterial corrosion in petroleum product pipeline. *Indian Journal of Chemical Technology* 12 (5), 567-575 [CSIR publication] (Impact Factor: 0.6).
4. Muthukumar N, **Rajasekar A**, Maruthamuthu S, Mohanan S, Ponmarriappan S and Palaniswamy N (2003) Microbiologically influenced corrosion in petroleum product pipelines- A review. *Indian Journal of Experimental Biology* 41, 1012-1022 [CSIR publication] (Impact Factor: 1.2).
5. Maruthamuthu S, **Rajasekar A**, Muthukumar N, Deepa LC and Palaniswamy N (2003) Anodic behaviour of biofilm on SS316. *Journal of Electrochemical Society of India* 52 (4), 140-144 (Indian Academy of Science, IISc, Bangalore).

### Books Published:

1. **Rajasekar A**, Maruthamuthu S, Ting YP, Balasubramanian R and Rahman PKSM (2012) Bacterial degradation of petroleum hydrocarbons in microbial degradation of xenobiotics (Environmental Science and Engineering), Editor Singh, Shree Nath, 339-369 [Springer] ISBN 978-3-642-23789-8.
2. **Rajasekar A** (2015) Biodegradation of petroleum hydrocarbon degradation and its influence on corrosion with special reference to petroleum industry in Biodegradation and bioconversion of hydrocarbons, Editors: K. Heimann, O.P. Karthikeyan, S.S. Muthu, ISBN 978-981-10-0201-4. In Press

### Genbank submission:

*Streptomyces parvus* B7, a novel biocorrosive and biodegradation bacteria in crude oil reservoir. The bacteria deposited for public access to DSMZ, Germany (DSM -101525) and NCL, Pune (NCIM - 5587)

### Invited Lectures and chairpersonships at National or International Conference/Seminar, etc.,

Sl.No	Title of Lecture/ Academic Session	Title of Conference/ Seminar (Whether International/ National)	Organized by
1	Biodegradation of petroleum hydrocarbons and its influence on corrosion with special reference to petroleum industry	National Seminar on "Recent Advances in Plant Sciences (RAPS-2015)"	P.V.K.N Govt. College, Chittoor Andhara Pradesh
2	The Bioremediation of hydrocarbon and influence on corrosion in crude oil reservoir	State level conferences on "Emerging Trends in Biological and Environmental Sciences" 10.09.2015	KMG College of Arts and Science, Vellore, Tamilnadu
3	Bacterial degradation of hydrocarbon and its role on corrosion with special reference to petroleum industry	International conference on "Converging Biotechnological Innovations for Health, Food and Environmental welfare- ICCBI-2015", 2-4 <sup>th</sup> December 2015	Karunya University, Coimbatore, Tamilnadu
4	Biodegradation of Petroleum Hydrocarbon Degradation and its Influence on Corrosion with Special Reference to Petroleum Industry	NATIONAL SEMINAR on "India A Hot Spot of Environmental Challenges and Need of the Multidisciplinary Approach to Solve the Environmental Issues" (IEMAEI-2015), 15 <sup>th</sup> -16 <sup>th</sup> December 2015	P.V.K.N Govt. College, Chittoor, Andhara Pradesh
5	Impact of Hydrocarbon Pollution with Special reference to Petroleum Industry	One day value added programme on "Effect of pollution on natural resources and environmental Impact Assessment" -NREIA-2016, 30 <sup>th</sup> April 2016	VIT University Vellore, Tamilnadu

### **National/International Conference papers:**

1. J. Narenkumar and **A. Rajasekar** (2015) Microbial Corrosion Control in Cooling Water System Presented in International Conference on Recent Advances in Synthetic Biology, Bishop Heber College, Tiruchirapalli,
2. **A. Rajasekar** (2013) Characterization of corrosive bacterial consortia isolated from cooling tower Presented in National Symposium on Glimpse of Innovations in Biotechnology Organized by Biogalaxia, Bharathiyar University, Coimbatore, 3<sup>rd</sup> October 2013.
3. P. Parthipan and **A. Rajasekar** (2014) Biodegradation of crude oil by mesophilic bacteria and its influence on corrosion Presented in National Conference on Global Trends and Challenges in Biosciences organized by IAAM & Dr, MGR Janaki College of Arts And Science for Women, Chennai, 5-6<sup>th</sup> December 2014
4. **A. Rajasekar** (2015) Role of Extracellular Polymeric Substances Produced by Mesophilic Bacteria on Corrosion of API 5LX Carbon Steel presented in National Conference on Recent Advances in Industrial Biotechnological Skills Development organized by Department of Botany, Thiagarajar College, Madurai, 30-31<sup>st</sup> March 2015.
5. P. Parthipan and **A. Rajasekar** (2015) Characterization of mesophilic hydrocarbon degrading bacteria in Indian crude oil reservoir presented in National Symposium on “Recent Advances in Biomedical Sciences” Thiruvalluvar University, Vellore, 26-27<sup>th</sup> February 2015.
6. **A. Rajasekar**, N. Muthukumar, V. Raju, P. Subramanian, S. Muralidharan, S. Mohanan, S. Maruthamuthu and N. Palaniswamy (2004) Corrosion problems in fire protection system: A case study presented in 12<sup>th</sup> National Corrosion Council of India (NCCI) Visakhapatnam (A.P)
7. O. P. Karthikeyan, B. Raghu, **A. Rajasekar**, S. Manivannan and R. Balasubramanian (2012). “Microwave-Assisted Pre-Treatment of Black Shale for Removal of Carbonaceous Matter”. Accepted for oral presentation in the International Conference on Environmental Science and Technology 2012 (ICEST, 2012), Houston, USA, June 25-29, 2012.
8. **A. Rajasekar**, C.J. Hsien and R. Balasubramanian (2011). “Bioleaching of metals (Cu, Fe and Ag) from chalcopyrite ore by Acidiphile group of bacteria”. IV International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld2011), Torremolinos (Spain), 14-16 September 2011 (Page No. 98)
9. O. P. Karthikeyan, **A. Rajasekar**, S. Manivannan and Rajasekhar Balasubramanian (2011). “Bioleaching of precious metals from low-grade copper ores using mixed consortium in air-uplift bioreactors: performance evaluation under single and two stage configurations”. IV International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld2011), Torremolinos (Spain), 14-16 September 2011 (Page No. 295).
10. **A. Rajasekar**, O. P. Karthikeyan, S. Manivannan and Rajasekhar Balasubramanian (2011). “Comparative Evaluation of Two Bioreactors for Bioleaching of Cu, Fe and Ag from chalcopyrite



by *Leptospirillum ferrooxidans*". IV International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld2011), Torremolinos (Spain), 14-16 September 2011 (Poster Presentation, Page No. 104)

11. R. Balasubramanian, **A. Rajasekar**, O.P. Karthikeyan, A.Szubert, A Grotowski, J.D. Lease (2011). "Bioleaching of precious metals from mineral ores: current challenges and future prospects". Presented in International conference, Poland, October 26-29, 2011.
12. S. Manivannan, **A. Rajasekar**, O.P.Karthikeyan and R.Balasubramanian (2012). "Bioleaching of copper from black shale ore using mesophilic mixed populations in an Air Up-lift Bioreactor". Abstract submitted for the International conference on Environmental Microbiology and Biotechnology (EMB 2012), Bologna, Italy, April 10-12, 2012.

#### **Seminar/Symposium/Conference conducted organized**

1. Two days national symposium organized on "Recent Advances in Biomedical Sciences by Department of Biotechnology, **Thiruvalluvar University, Vellore, 26-27<sup>th</sup> February 2015**

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