

## FACULTY PROFILE DR. JAYACHANDRAN.K

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1. **Qualifications**-M.Sc., PhD in Biotechnology (CUSAT), CSIR, GATE 94%
2. **Field of interest**- Bioprocess Technology
3. **Teaching / Research experience** – 14years
4. **PhD awarded - 4, Ongoing- 4**
5. **M.Phil/MSc thesis Guided – 22; 14/8**
6. **Publications -20 International 12 and 7 national.**  
In Scientific Magazine -1. Book Chapters – 2
7. **Seminars/Workshops/Invited lectures**  
i) In Seminars /Symposia/ Conference/workshop -17 ii) Invited lectures -16



### ACADEMIC ACHIEVEMENTS

#### 1. Ph.D Awarded -4

1. *In vitro* culture and secondary metabolite production in *Scoparia dulcis* Linn. Annie J. Mathew - **Annie J Mathew, 2009**
2. Microbial degradation of natural rubber latex and its application in the treatment of latex centrifugation effluent - **Elizabeth Cherian, 2010**
3. Beta glucosidase production from *Paeleomyces variotti* through solid state fermentation - **Joseph Job, 2011**
4. Microbial production of biosurfactants-**Seba George.2011**

#### 2. Book Chapter Contribution

1. A chapter entitled '*Polyphenol oxidase and its applications*' in the book "Chemistry and Biotechnology of Phenols" published by **Ane Books, New Delhi, 2010.**
2. A chapter entitled 'Fermentation of Food processing byproducts' in the book "Valourization of food processing byproducts" published by **CRC, Taylor and Francis, 2012.**

#### 3. Important Research Contributions

1. Utilization of **wheat bran** for the microbial production of **beta glucosidase.**
2. Production, purification and characterization of bacterial extracellular **inulinases.**
3. Production, purification and characterization of **alpha amylase and beta glucanase.** from endophytic *Bacillus amyloliquefaciens.*
4. Sequencing of the alpha amylase and **beta glucanase** gene in *Bacillus amyloliquefaciens.*

5. Bacterial **esterases** acting on natural esters in presence of organic solvent.
6. Utilization of **luffa sponge** in the production of **scopadulcic acid**.
7. Utilization of **orange fruit peelings and waste frying oil** for the production of **rhamnolipid biosurfactant**.
8. Biodegradation of **phenol** and its application in the treatment of phenolic **paper factory effluent**.
9. Microbial production of Biopolymer-**Polyhydroxybutyrate (PHB)**.
10. Biodegradation of **natural rubber latex** and its application in the treatment of **latex centrifugation effluent**.

### 3. Ongoing Projects

1. Demonstration of Vermicomposting Technique and Extension of the Technique to Athirampuzha Grama Panchayath-BIRD Programme, Kerala Biotechnology Commission, Government of Kerala.
2. Safety evaluation of the process of chlorination in drinking water systems-University Grants Commission, New Delhi.
3. Microbial quorum sensing and its Biotechnological applications-Kerala Biotechnology Commission. Government of Kerala.

### 4. List of Publications

1. "A novel *Acinetobacter* sp. for treating highly acidic rubber latex centrifugation effluent". **Jayachandran, K.**, Suresh, P. V. and Chandrasekaran, M. (1994). *Biotechnology Letters*, 16: 649-654. **U.K. Impact factor 1.22**
2. "Biological coagulation of skim latex using *Acinetobacter* sp isolated from natural rubber latex centrifugation effluent." **Jayachandran, K** and Chandrasekaran. M. (1998). *Biotechnology Letters*, 20: 161-165. **U.K. Impact factor 1.22**
3. "Treatment of dairy waste water using a selected bacterial isolate *Alcaligenes* sp MMRR7". K. Rajeshkumar and **Jayachandran K**. *Applied Biochemistry and Biotechnology* (2004), 118, 65-72. **UK. Impact factor 1.7**
4. "Effect of an antimicrobial ayurvedic compound *Kaishoragugguluvadakam* in the micropropagation of *Scoparia dulcis*." Annie J. Mathew and Jayachandran, K. In *Asian Journal of Microbiology, Biotechnology and Environmental Sciences*, (2005), 7 (2): 311-314. (Indian Journal).

5. "Production and purification of extracellular exoacting inulinase from a novel bacterial strain". Amit Abraham and K. Jayachandran. *Research Journal of Biotechnology*. (2007), 2, 45-49.1.
6. "Production and purification of extracellular exoacting inulinase from a novel bacterial strain". Amit Abraham and K. Jayachandran. *Research Journal of Biotechnology*. (2007),2,45-49.(Indian Journal)
7. Rapid propagation of *Scoparia dulcis* Linn. Annie J. Mathew and K.Jayachandran. Accepted in *Research Journal of Biotechnology*, 2008.
8. Endophytic *Penicillium citrinum* Thom.From *Scoparia dulcis* Linn. Annie J Mathew, Jayachandran K. and Jyothis Mathew. Accepted in *Indian Journal Of Microbiology*, Springer.2008.
9. "Treatment of phenol containing paper factory effluent with immobilized cells of phenol degrading *Alcaligenes* sp." Indu C Nair, . **Jayachandran K** and Shankar Shashidhar. *Bioresource Technology*. (2007), 98,714-716.Elsevier, **USA Impact factor 4**
10. "Production of rhamnolipid biosurfactant from *Pseudomonas aeruginosa* MTCC 2297 by Submerged fermentation using orange fruit peelings as sole carbon source' Sheba George and **Jayachandran K**, *Applied Biochemistry and Biotechnology*, 158,694-705. Springer. 2009. **USA Impact factor 1.7**
11. Accumulation of intracellular Polyhydroxybutyrate in *Alcaligenes* sp d<sub>2</sub> under phenol stress. Indu C Nair, Pradeep S, Ajayan M S, **Jayachandran. K** and Shankar Shashidhar. *Applied Biochemistry and Biotechnology*, 159, 2, 545-552. Springer 2009. **USA Impact factor 1.7**
12. Production of scopadulcic acid B from *Scoparia dulcis* using luffa sponge immobilized bioreactor. Annie J Mathew and **Jayachandran, K**. *Plant, tissue and organ culture*, 98,197-203, Springer, Netherlands , 2009. **Impact factor, 1.06**
13. Production of highly glucose tolerant beta glucosidase by *Paecilomyces variotii* MG3; optimization of fermentation conditions using Plackett-Burman and Box-Behnken experimental designs. Joseph Job, Rajeev K Sukumaran, **Jayachandran K**. 26,1385-1391. *World Journal of Microbiology and Biotechnology*, 2010.
14. Microbial degradation of natural rubber latex by a newly isolated *Bacillus Pantothenicus* isolated from soil. Elizabeth Cherian, and **Jayachandran K**, *International journal of Environmental Research*.3, 4,599-604., 2010

15. Biological treatment of natural rubber latex centrifugation effluent using activated sludge system enriched with *Bacillus* sp. SBS25. Elizabeth Cherian, and **Jayachandran K**, International Journal of Environmental Studies, 67, 5, 725-733, 2010.
16. **A novel exploitable feature of “*Chromobacterium violaceum*” –experimental evidence for phenol degradation.** Sreeja Narayanan, Tintu Prasad, Indu C Nair and Jayachandran.K. Novus International Journal of Biotechnology and Bioscience, 1(3), 2012.
17. ***In vitro* propagation and vanillin production from *Aerva lanata* (L.) Juss.ex Shultes.** M. S. Surya, Mohammed Ashiq and Jayachandran, K. Indian Journal of Life Sciences. 2012 (Accepted for publication)
18. **Pilgrimage and depleting water quality; A preliminary study on river Pampa .** Sajuddin P.A., Mohammed Ashiq and Jayachandran.K Pollution Research. 2012 (Accepted for publication)
19. Biodegradation of toluene hydrocarbon by a *Pseudomonas* sp isolated from gasoline contaminated soil. Pratheesh P.T. and Jayachandran.K. International Journal of Plant, Animal and Environmental Sciences, 2(3), 2012.
20. Analysis of the pathway of phenol biodegradation by *Alcaligenes* sp d<sub>2</sub>. Merlin Antony, Indu C. Nair and Jayachandran.K. Collected Research Works entitled “Prospects in Bioscience: addressing the issues “published by Springer.

#### **Papers under Revision**

21. **Novel bacterial endophytes from *Hevea brasiliensis* acting as biocontrol agents against *Phytophthora meadii*.** Amith Abraham<sup>a</sup>, Shaji Philip<sup>a</sup>, Kuruvilla Jacob.C<sup>a</sup> and Jayachandran K<sup>b\*</sup>., **BioControl (Springer).** 2012. (under revision)
22. **Microbial consortia formulation for the effective degradation of Benzene, toluene, xylene and phenol.** Dhanya and Jayachandran.K International Journal of Environmental studies, 2012 (Under revision)
23. ***In silico* characterization of a novel  $\beta$ -1, 3-glucanase gene from a *Bacillus amyloliquefaciens*, a bacterial endophyte of *Hevea brasiliensis* antagonistic to *Phytophthora meadii* .** Amith Abraham<sup>a</sup>, Sunilkumar P. N.<sup>b</sup>, Shaji Philip<sup>c</sup>, Divya G. Nair<sup>d</sup>, Aparna C.<sup>a</sup> and Jayachandran K<sup>a\*</sup>. **Journal of Molecular Modeling (Springer).** (Under revision)

### **Papers Communicated**

24. **Selective Amplification of Catechol 2,3 dioxygenase gene from phenol degrading *Alcaligenes sp d<sub>2</sub>* isolated from soil.** Mohammed Ashiq and Jayachandran.K
25. **Molecular confirmation of the presence of beta glucanase in endophytic *Bacillus amyloliquefaciens*.** Amith Abraham, Aparna and Jayachandran.K.
26. **A bacterial esterase from *Alcaligenes sp* capable of hydrolysing orange fruit peel esters in presence of acetone.** Nivil Gopi, Dhanya and Jayachandran.K
27. **Inhibition of violacein synthesisi in *Chromobacterium violaceum* DSTS 1 mutant.** Sania, Seethal Sivankutty, Merlin Antony , Mohammed Ashiq and Jayachandran.K
28. **Chlorination induced dichloromethane in the treated drinking water systems.** Mohammed Ashiq. Sajuddin P. A. and Jayachandran.K.

### ***In Scientific magazine***

Published one popular article entitled “*Chromobacterium violaciem*-a potential candidate for Biotechnological exploitationsin” Advanced Biotech (2006). 5, 06, 31-33.

### **5. Editorial Experience**

1. Reviewer in Process Biochemistry, Elsevier
2. Reviewer in African Journal of Biotechnology
3. Reviewer in Research Journal of Biotechnology