

Dr. K.SUJATHA

Lecturer

UGC-Networking Resource Centre in Biological Sciences

School of Biological Sciences

Madurai Kamaraj University, Madurai 625 021

RESEARCH AREAS:

1. Environmental Biotechnology – Microbial biofilms and their control strategies
2. Medical Microbiology – Biofilms associated infections

CONTACT DETAILS:

Email: sujathakabilan@yahoo.co.in

RESEARCH INTEREST:

My research work mainly focuses on bacterial biofilms (micro-cities). Biofilms are found everywhere. In aqueous environments bacteria tend to settle onto surfaces and form micro-cities called biofilms. One of the most serious concerns about biofilms is that they can harbor and protect pathogenic (disease causing) bacteria making them resistant to the treatment of antibiotics, biocides and our immune system. As a result of this protection, biofilms play an implemental role in water contamination, implant infections, ear infections and the disease cystic fibrosis. The overall interest of this research is to provide simple and reliable strategies that have the ability to control biofilm formation.

Studies are also conducted on fungal pathogen (*Candida albicans*) associated with biofilm formation on medical devices like urinary catheters and dental prostheses. Cells released from these biofilms can migrate to the bloodstream and can cause systemic infections. Fungal biofilms are highly resistant against most commonly used antimycotics. Therefore, biofilm-associated infections of retained devices may recur after cessation of antibiotic therapy and hence may necessitate device removal. The evidence linking *Candida* biofilms to device-related infections is growing as more standardized methods for evaluating *Candida* biofilms *in vitro* emerge. Hence, research work is initiated to study the role of biofilm production in the pathogen city of *Candida*-related device infection and the antifungal drug susceptibility of *Candida* biofilms.

PUBLICATIONS:

1. K.Sujatha, A.Mahalakshmi, D.K.Y.Solaiman and R.Shenbagarathai (2009). Sequence Analysis Structure Prediction and Functional Validation of *phaC1/phaC2* Genes of *Pseudomonas* sp. LDC-25 and Its Importance in Polyhydroxyalkanoate Accumulation. . *Journal of Bio Molecular Structure and Dynamics*. (In Press).

2. A.Mahalakshmi, K.Sujatha and R.Shenbagarathai (2008). Molecular modeling and characterization of *Bacillus thuringiensis* Bt LDC-9 cytolytic proteins. *Journal of Bio Molecular Structure and Dynamics*. Vol (26) 3- 273-402.
3. K.Sujatha, A.Mahalakshmi and R.Shenbagarathai (2007). Molecular characterization of *Pseudomonas* sp. LDC-5 involved in accumulation of Poly 3-hydroxybutyrate and Medium- Chain-Length poly - 3-Hydroxyalkanoates. *Archives of Microbiology*. 188: 451-462.
4. K. Sujatha and R. Shenbagarathai (2006). A study on mcl polyhydroxyalkonate accumulation in *e-coli* harboring *phaC* gene of indigenous *pseudomonas* sp. LDC-5. *Letters in Applied Microbiology*. Vol. 43, (6), pp.607-614.
5. K.Sujatha, A.Mahalakshmi and R.Shenbagarathai (2005). A Study on the accumulation of PHB in the native isolates *Pseudomonas* (LDC-5 & LDC-25). *Indian Journal of Biotechnology*. Vol. 4, pp 216 – 221.
6. K.Sujatha, R.Shenbagarathai and A.Mahalakshmi (2005). Analysis of PCR products for PHB production in indigenous *Pseudomonas* sp. LDC-5. *Indian Journal of Biotechnology*. Vol 4, 323 – 335.
7. K.Sujatha, R.Shenbagarathai and A.Mahalakshmi (2005). Production of polyhydroxy butyrate by *Pseudomonas* sp. isolated from native environment (Madurai district). *E-polymer*. Conference paper section: ID No: P_017.
8. A.Mahalakshmi, R.Shenbagarathai and K.Sujatha (2005). ITS and REP based identification of Novel Indigenous *B.thuringiensis* strains from Madurai district. *Indian Journal of Experimental biology*. Vol 43, 414-419.
9. A.Mahalakshmi, K.Sujatha and R.Shenbagarathai (2004). Study of native *Bacillus thuringiensis* isolates and analysis of its effect on *spodoptera litura*. *Asian Journal of Microbiology, Biotechnology and Environmental Sciences*. Vol. 6, no. 4, 641 – 645.
10. K.Sujatha, A.Mahalakshmi and Shenbagarathai.R (2003). Biotransformation of kitchen waste by earthworm and microbe interactions and its effect on the growth of tomato [*Lycopersicum esculentum*] and Chilli [*Capsicum annum*]. *Nature Environment and Pollution Technology*. Vol.2 p.53-56.
11. R.Shenbagarathai, K.Sujatha, A.Mahalakshmi and R.Shanthi Nalini (2003). Effect of Native isolates of *Azotobacter* Species on Chilly (*Capsicum annum*). *J.Microb.World*. 5(2) p117-119.