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A study on synergistic effect of polyhydroxyvalerate and plant extract against nosocomial pathogens

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Plastic is a major pollutant of our ecosystem. It is a non-degradable substance made of toxic petrochemicals. It has become an unavoidable substance for the basic needs of man due to its ease of production and commercial properties. But the serious treats created by its use have forced us to either reduce its use or find an alternative. Thus the researchers have found the most reliable and biodegradable plastics produced by microorganisms. Bio-plastics (Polyhydroxy alkanates) are biopolymers produced by different types of microorganisms. PHAs are synthesized and accumulated intra-cellularly during unbalanced growth conditions. PHV is produced by organisms when succinate, propionate or valeric acid is provided as substrate in nitrogen limited medium. *Bacillus* species is used here for the production of polyhydroxyvalerate. Sudan Black staining was done to confirm the presence of Polyhydroxyvalerate. It was extracted by using chloroform-sodium hypochlorite extraction method. The powder was dried and weighed (0.87g/100ml). The antibiotic susceptibility of test pathogens was carried by Kirby Bauer method. Succinate is the main carbon source selected for the production medium. *Delonixregia* shows a wide range of antimicrobial activity against certain group of bacteria. The extraction process was carried out using soxlet apparatus. The synergistic effect of leaf extract and PHV against nosocomial pathogens was determined by well diffusion method and it showed zone of inhibition against *Shigella* and *Klebsiella* species. GC MS analysis was performed to identify the compounds present in the leaf extract. It was noted that the antimicrobial activity of the extract can be enhanced by the addition of PHV.

Biography

Muthulaxmi V, MSc, M Phil is a PhD Scholar in Microbiology Division at School of Biological Science, CMS College of Science and Commerce, Coimbatore. She worked as Lecturer in Nehru Arts and Science College, Coimbatore and as Honorary Research Worker in Sugarcane Breeding Institute. She has published 5 research articles in international journals and presented a paper on the topic 'Bio-plastic production' in Sri Krishna Arts and Science College, Coimbatore.

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