

# **Surface modification of Poly (Lactic-co-glycolic) acid multiwalled carbon nanotubes based on microwave radiation**

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## **Abstract:**

Poly(Lactic-co-glycolic) acid (PLGA) is a biopolymer with numerous opportunities for medical science and environmental application. Tailoring the surface behavior of hydrophobic PLGA is important for many of their application. The carbon nanotube is one of the graphene derivatives that have superior thermal, mechanical, electrical, and optical properties. A lot of research has been devoted to enhancing the properties of polymers using nanomaterials. In this research, composites of PLGA and multi-walled carbon nanotube (MWNT) were prepared by using the solution cast technique with different MWNT contents. These composites are processed using microwave radiation to modify the surface behavior. The effects of processing are investigated using different techniques such as Contact angle measurement, Atomic force microscopy, Raman spectrometer, Fourier transform infrared spectroscopy, and bacterial interactions. It is observed that microwave radiation modifies the surface behavior without introducing any additional surface functionalities. This is clearly observed effects of microwave radiation in the bacterial investigation where microwave radiation changes bacterial growth behavior in composites compared to pure polymer.

## **Biography**

Dr. Ananta Adhikari received a master's degree in physics (2003) and a Ph.D. (2007) from the State University of New York, Albany. After his Ph.D., he worked in a different institute as a postdoctoral researcher. He then joined the State University of New York, Potsdam in the Fall of 2019 as an Assistant Professor of Physics. Since then, he has been involved in teaching and research involving undergraduate students. Dr. Adhikari's research interest is in Polymer Nanocomposites. His current research is focused on the modification of Polymer nanocomposites for their biomedical application such as biosensors and bioscaffolds.

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