

## Recovery of Copper from Edge Trims of Printed Circuit Boards Using *Acidithiobacillus Ferrooxidans*: Bioleaching

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**Abstract :** The enormous generation of E- waste and its recycling have greater environmental concern especially in developing countries like India. A major part of this waste comprises printed circuit boards (PCBs). Edge trims of PCBs have high copper content ranging between 25-60%. The extraction of various metals out of these PCBs is more or less a proven technology, wherein various hazardous chemicals are being used in the resource recovery, resulting into secondary pollution. The current trend of extracting of valuable metals is the utilization of microbial strains to eliminate the problem of a secondary pollutant. Keeping the above context in mind, this work aims at the enhanced recovery of copper from edge trims, through bioleaching using bacterial strain *Acidithiobacillus ferrooxidans*. The raw material such as motherboards, hard drives, floppy drives and DVD drives were obtained from the warehouse of the University. More than 90% copper could be extracted through bioleaching using *Acidithiobacillus ferrooxidans*. Inoculate concentration has merely insignificant effect over copper recovery above 20% inoculate concentration. Higher concentration of inoculation has the only initial advantage up to 2-4 days. The complete recovery has been obtained between 14- 24 days.

**Keywords :** acidithiobacillus ferrooxidans, bioleaching, e-waste, printed circuit boards

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