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Novel biological method for Iron rust removal

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Rust is the reddish brown oxide of iron formed by the action of moisture and oxygen on the metal. It is an electrochemical corrosion which weakens the iron structures. It was estimated that the corrosion alone causing a loss of over \$5000bn USD to global economy every year. According to a recent report of NACE, the corrosion cost in any developing countries predicated by 5% of the GDP, for India the cost of corrosion is estimated to be Rs. 1.52 lakh crore per year. All available methods for rust removal and corrosion prevention are having their own limitations. Therefore, it is an urgent need to find out suitable method to check the corrosion. A fungal based biological derustification process was observed and reported by us already. This present investigation deals with our further experiments and experiences on the fungal based technology for iron rust removal. The derustification process was repeated once again to confirm the reproducibility of the technology in polybag fermenters. Rusty iron meshes which were rolled in the form of cylinders were placed in the fermenters to expose them to the aerosol particles generated by the fungus. The rate of derustification was noted. Attempts were also made to enhance the aerosol generation from the substrate (straw) by coconut water supplementation. It was observed that the rusty metals placed in the supplemented substrate were derusted quickly than the raw substrate. Various level of supplementation was also correlated with rate of derustification. Further works on rust removal process are under progress.

Biography

S Rajendran is an Associate Professor at Saraswathi Narayanan College and Coordinator of Unit of Rural Biotechnology at Saraswathi Narayanan College, India. He has over 50 scientific papers & projects either presented or published. He is an internationally recognized expert in many areas of environmental biology including solid waste management, waste water treatment, anaerobic digestion, biofuel, bioenergy production and formulator of bio-pesticide and herbicide. He is serving as a Reviewer in many biological journals. He has also chaired the scientific sessions in conferences. He has conducted more than 30 scientific workshops for the upliftment of rural people and women self help groups. He was awarded with Patron of Environment by Tamil Nadu Government in 2006. He is serving as a Consultant in many of the environmental organizations. His work in biological derustification is a novel pioneer technique and growing area in the environmental biotechnology.

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