

Past and Present Research Systems of Green Chemistry

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Industrial enzymes used to build green technology for pre-treatment of textile dyeing

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Traditional textile dyeing process is a significant amount of water and chemicals industries also causing serious pollution. Using enzymes to replace traditional chemical processing can improve product quality and reduce environmental pollution. Enzymes used in textile processing mainly in three aspects: First, the use of alkali-resistant catalase to degrade residual hydrogen peroxide of gray cloth in the bleaching washing process. Second, the use of alkaline amylase and PVA enzyme break down starch and PVA which added on natural fiber fabrics during pretreatment. Third, the use of pectinase set up refining process of textile pre-treatment to reduce difficulty of energy consumption and waste water treatment, while improving product quality. Our research mainly focuses on engineering applications of alkaline amylase, alkaline hydrogen peroxide and pectinase, cellulase. Establish low cost and large-scale preparation of textile enzyme. Build green biotechnology for desizing, refining, bleaching process. Work up a new model which is clean, low-carbon and sustainable development of bio-manufacturing industry.

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Improvement of water quality of lodra lake of gandhi nagar district by using natural and synthetic coagulants

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Present investigation attempts to study of seasonal variation in the physico-chemical properties status and effect of plant based coagulant, chemical coagulant and mixture of coagulants to water of Lodra Lake, Gandhi nagar, Gujarat. Selected parameters such as Water Temperature, Transparency, Turbidity, Total Dissolved Solids (TDS), pH, EC, Dissolved Oxygen (DO), BOD, COD, and Total Hardness (TH), Chlorides, Alkalinity, Phosphate and Nitrates, Sulphates, Florides were analyzed for a periods of one year from 1st July 2013 to 30th June 2014. The use of synthetic & natural coagulants like PAC, Lemon (*Citrus lemonum*) and mixture of PAC & Lemon (*Citrus lemonum*) showed better turbidity removal. All parameters were not within the permissible limits. The results indicate that the lake is polluted and cannot be used for domestic and Pisciculture.

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