EXECUTIVE SUMMARRY

Phenolic compounds are one of the major pollutants of soil and aquatic ecosystem , some of these compounds like Bisphenol A {2,2- bis-(4 hydroxyphenyl) propane} (BPA) is an important industrial chemical with two phenol functional groups that is used primarily to make polycarbonate plastic and epoxy resins, both of which are used in a wide variety of applications like eyeglass lenses, medical equipment, water bottles, digital media (e.g. CDs and DVDs), cell phones, consumer electronics, computers and other business equipment, electrical equipment, household appliances, safety shields, construction glazing, sports safety equipment, and in automobiles. If such compounds accumulates and enter in to the food chain than they act as an Endocrine Disrupting Chemical (EDC) and disrupt the physiological function of endogenous hormones. As such compounds do not dissolve in aqueous media owing to its high hydrophobicity, organic solvents are required to dissolve it. This implies that the use of organic solvents inevitably allows the degradation reaction to proceed at a high concentration of environmental pollutants and in a homogenous system. However, native enzymes do not exhibit significant catalytic activities in organic media. Thus in the present study we have tried to optimize preparation of reverse micelles by statistical optimization using central composite design method. On the basis of the results obtained from the statistical analysis various diagnostic plots were analysed and point prediction was performed to find out the actual concentration of different variables which were found to be 150mM for AOT, 1 mM for substrate concentration and 43.5 µg/ml for Enzyme concentration at pH 6.0. This optimization led to 40% increase in the enzyme activity in reverse micelles as compare to aqueous system. The disappearance of Bisphenol A was monitored by High Performance Liquid Chromatography. It was found that after the incubation at 30°C for 75 minutes 91.43% elimination of 200 ppm Bisphenol A was observed however further incubation for 120 minutes completely eliminates Bisphenol A from the reaction mixture.