Redox Potential, the Main Barrier of Laccase-Mediated Biobleaching of Pulp in Paper Industry

Yasaman Parsia¹, Shahryar Sorooshian²

¹Department of microbiology, Kerman branch, Islamic Azad University, Kerman, Iran
²Faculty of Industrial Management, Universiti Malaysia Pahang, Gambang Kuantan, 26300, Pahang, Malaysia

ABSTRACT

A recently published article identified the main difficulties of implementing laccases at industrial scale for eco-friendly biobleaching of pulps for papers. This paper analyses the difficulties, mathematically, to prioritize them. Expert’s opinion is input data for the analysis. Multi-criteria decision making method is used for analysis. From the result and among the barriers that effect on stability of laccase, Redox potential with 52.2% priority is the most important difficulties; it is followed by pH with 25.3% priority. Moreover, this paper also provides a list of suggestion for future studies.

KEYWORDS: Paper Industry; Redox potential; pH; temperature; lack of oxygen; grafting reactions