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Synthesis of methyl phenyl sulfoxide from its sulfide by *Musa paradisiaca* ascorbate peroxidasePratibha Yadav<sup>1</sup>, Kamlesh S Yadav<sup>2</sup>, Sunil K Khare<sup>1</sup> and Satyawati Sharma<sup>1</sup><sup>1</sup>IITD, New Delhi, India<sup>2</sup>SIIT, UP, India

Chiral organic sulfoxides are important synthons and chiral auxiliaries in synthetic organic chemistry. Therefore synthesis of chiral sulfoxide is an active area of continuing research interest. The most common method for the preparation of sulfoxide is by the oxidation of their corresponding sulfides. Both the chemical and biological catalysts have been developed for this purpose. Though the reaction conditions for the preparation of chiral organic sulfoxides. With hope that some of them will produce the desired sulfoxidation in a good enantiomeric excess. Being involving in biological catalysts are milder and ecofriendly in comparison to those involving in chemical catalysts, they are of limited practical use. This communication reports a crude preparation of ascorbate peroxidase from *Musa paradisiaca* which can be conveniently prepared and used for the transformation of methyl phenyl sulfide to its sulfoxide. This is the report of sulfoxide formation using a plant enzyme. The method for the preparation of enzyme from *Musa paradisiaca* has been developed. The enzymatic characteristics like Km for the substrates sulfide and H<sub>2</sub>O<sub>2</sub>, pH and temperature optima of the enzyme have been determined. The enzymatic transformation of sulfide to its sulfoxide has been demonstrated. The results of the above studies will be presented in the conference.

## Recent publications

1. Yadav P, Sharma J K, Singh V K, Yadav M, and Yadav K D S (2012) Purification of chloroperoxidase from *Musa paradisiaca* stem juice. International Journal of Chemical Kinetics. DOI: 10. 1002/KIN.20746. 92-100.
2. Yadav P, Singh V K, Yadav M, Singh S K, Yadav S, Yadav K D S (2012) Purification and characterization of Mn-peroxidase from *Musa paradisiaca* (banana) stem juice Indian Journal of Biochemistry & Biophysics 49: 42-48.
3. Yadav P, Sharma J K, Singh V K, Yadav K D S (2010) Substrate specificity for N-Oxidation of Chloroperoxidase purified from *Musa paradisiaca* stem juice. Biocatalysis and Biotransformation. 28(3): 222-226.
4. Yadav M, Yadav P, Yadav K D S (2009) Purification and characterization of lignin peroxidase from *Loweporus lividus* MTCC-1178. Eng. in life Sci 9(2): 124-129.
5. Yadav M, Yadav P, Yadav K D S (2009) Purification, Characterization and coal depolymerizing activity of lignin peroxidase from *Lenzitus seperia* MTCC – 1170. Biochemistry (Moscow) 74 (10): 1380-1387.

## Biography

Pratibha Yadav has realized the importance of enzymes. She joined research for PhD on the topic, "Partial Purification & Biotechnological Application of Some Peroxidases" in the Department of Chemistry DDU Gorakhpur University, India, in 2006. During this period, she has isolated, purified and characterized four peroxidases and one other enzyme, Laccase from the plant source. She has worked as Assistant Professor in Gurgaon College of Engineering from September 2011 to April 2014. She has been awarded Post-Doctoral Fellowship for Women in May 2014 for 5 years. She is working on structural and functional studies of plant enzymes in IIT Delhi, India. Use of enzymes in organic synthesis as reagents are preferred because enzyme catalyzed reactions are efficient, specific, occur under milder conditions, ecofriendly and optically pure isomers are obtained which are pharmaceutically important.

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