P251 ENZYMATIC DYEING OF KERATINOUS MATERIALS

TZANKO TZANOV, ENRIQUE PRADA, CARLA JOANA SILVA, ANDREA ZILLE, and **ARTUR CAVACO-PAULO**

University of Minho, Textile Engineering Department, 4800-058 Guimaraes, Portugal, e-mail: artur@det.uminho.pt

Keywords: keratinous fibre, laccase, protein disulfide isomerase

This study reports on the dyeing of keratinous materials using appropriate enzymatic systems – laccases and protein disulfide isomerase. The enzymatic dyeing was performed as a batchwise process at the temperature and pH of maximum enzyme activity. Laccases generate the colour “in situ” starting from low molecular colourless compounds – dye precursor and dye modifiers. Different hues and depth of shades could be achieved varying the concentration of the modifiers and the time of laccase treatment. Protein disulfide isomerases, based on their ability to catalyze thiol-disufide exchange, including oxidation, reduction and rearrangement, were used for covalent fixation of novel cysteine-modified dyes on keratinous fibres.