



## **AN ENVIRONMENTAL FRIENDLY METHOD FOR NYLON 6 FIBER HYDROLYSIS USING LIPOLYTIC ENZYME**

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Nowadays, textile processing based on biotechnology has gained importance in view of stringent environmental and industrial safety conditions. Traditional chemical treatments are replaced by enzymes because of their lower product quality, higher manufacturing cost, more waste and added energy consumption. For this purpose, enzymatic hydrolysis of synthetic fibers to improve undesired properties such as hydrophobicity, low dyeability and insufficient washability are of considerable interest to chemists. This study confirms structural changes of nylon 6 fibers using lipase by measurement of dyeability, moisture absorbency and fastness properties. For this purpose, nylon 6 fabrics were first treated with different concentrations of lipase enzyme in water solution including 1, 2, 4 and 6% o.w.f. for 80 min at 30°C. The dyeing process was then carried out on the treated fabrics with a disperse dye. A UV–visible spectrophotometer was used for determination of dye bath exhaustion. Disperse dyes showed higher exhaustion on the enzyme treated samples. The moisture regain of untreated nylon 6 fabric increased with enzyme treatment. The wash fastness properties of samples were measured according to ISO 105-CO5.