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Title:	A sustainable and green process for scouring of cotton fabrics using xylano-pectinolytic synergism: switching from noxious chemicals to eco-friendly catalysts
Authors:	Singh, Avtar (/jspui/browse?type=author&value=Singh%2C+Avtar)
Keywords:	Cotton fabric Alkaline scouring Bioscouring Bleaching Eco-friendly
Issue Date:	2018
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Citation:	3 Biotech, 8(4)
Abstract:	The objective of this research was to develop an appropriate, eco-friendly, cost-effective bioscouring methodology for removing natural impurities from cotton fabric. Maximum bioscouring was achieved using 5.0 IU xylanase and 4.0 IU pectinase with material to liquid ratio of 1:15 in a 50 mM buffer (glycine–NaOH buffer, 1.0 mM EDTA and 1% Tween-80, pH 8.5) with a treatment time of 60 min at 50 °C and an agitation speed of 60 rpm. The bioscoured cotton fabrics showed a gain of 1.17% in whiteness, 3.23% in brightness and a reduction of 4.18% in yellowness in comparison to fabric scoured with an alkaline scouring method. Further, after bleaching, the whiteness, brightness and tensile strength of the bioscoured fabrics were increased by 2.18, 2.33 and 11.74% along with a decrease of 4.61% in yellowness of bioscoured plus bleached fabrics in comparison to chemically scoured plus bleached fabrics. From the results, it is clear that bioscouring is more efficient, energy saving and an eco-friendly process and has the potential to replace the environment-damaging scouring process with the xylano-pectinolytic bioscouring process.
Description:	Only IISERM authors are available in the record.
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