**Authors Response to Reviewers Comments**

**Referee: 1**

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| **Comments** | **Answers** |
| 1. p.2, lines 35-38, sentence is not clear and correct, should be corrected. | Correction has been made |
| 2. p.2, lines 38-40, sentence is not clear and should be corrected. | Correction has been made |
| 3. p.2, lines 44-45, sentence is not clear and should be corrected. | Correction has been made |
| 4. p.2, lines 49-53, sentences are not clear and should be corrected. | Correction has been made |
| 5. p.2, lines 55-56, sentence is not clear and should be corrected, eg. The size of cellulase enzyme molecule can be INCREASED by immobilization techniques...... | Correction has been made |
| 6. Running title should be corrected, e.g. Structure and properties of biopolished cellulose | Correction has been made |
| 7. Fig.1 as authors stated in the Introduction part "endoglucanase randomly attacks cellulose chains ", but according to the scheme given in fig.1 It looks like endoglucanase splits intermolecular H-bonds. Fig. 1 should be corrected. | Correction has been made |
| 8. p.4, lines 90-92, authors stated that they biopolished cotton fibric using both soluble and immobilized cellulase (better term free and immobilized enzyme), and at three concentration. In the case of free enzyme it is clear, but in the case of immobilized enzyme what is meaning of "three concentrations of cellulase 1, 2, and 3 % on-weight of fabric (owf)," 1,2 and 3 % of what? Authors did not stated that they determined immobilized enzyme content. | Necessary correction has been made |
| 9. p.6. Using Methylene Blue Absorption Test to evaluate cellulose degradation is inappropriate. These tests should be used in the case of cellulose oxidation to evaluate COOH group content, possibly to evaluate changes in sorption properties. In the case of cellulose chain depolimerisation resulting in increase of reducing end group content, Cu-number should be used. | Methylene blue absorption test can be used to evaluate hydrolytic degradation. From the following references, the methylene blue absorption method was taken for to analyse the cellulose degradation.   * Merkel, R. S.1984. Methods for analyzing damage in textile materials. In *Analytical methods for the textile laboratory*, ed. J. W.Weaver. Research Triangle Park, N.C.: American Association for Textile Chemists and Colorists. and * Carr, C., ed. *Chemistry of the textiles industry*. Springer Science & Business Media, 2012 was taken for the |
| 10. p.6 ATR-FTIR analysis, Discussion should be improved, authors should compare and evaluate whole FTIR spectra, since from them they can observed changes in total crystallinity index (TCI) (Nelson and O’Connor 1964), lateral order index (LOI) (O’Connor et al. 1958) and hydrogen bonding intensity (HBI) (Nada et al. 2000). | Whole FTIR spectra were incorporated and TCI, HBI, and LOI has been derived and incorporated in the text as per the reviewers comment |
| 11. p.7, XRD analysis: Discussion is unclear, the interpretations are not understandable...e.g. " THE CRYSTALLINITY INDEX (CRI) OF IMMOBILIZED CELLULASE was lower than the cotton fabric treated with soluble cellulase  because the immobilized cellulase is limited to the surface whereas the soluble enzyme penetrates to the inner structure of the fabric. "Authors determined CrI of cotton fabric not immoblized cellulase. In the experimental part data about instrument, model and producer, as well as conditions for recording spectra, are missing. | Necessary corrections has been made |

**Referee: 2**

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| **Comments** | **Answers** |
| 1. The manuscript does not have enough information about immobilization procedure, conA isolation, and information about immobilized enzyme. For example: page 4 line 78, the concentration and pH value of tris buffer is missing; | Necessary corrections have been made |
| 2. line 85 the storage condition is missing, if it is stored dry I have doubt about enzyme native structure and its further activity. | Prepared immobilized cellulase beads were stored in 4oC. Enzyme retained upto 100% activity when stored at 4oC for a month. Storage stability of the beads were studied and the results were published in (S. Nisha, N. Gobi,) *Biocatal. Biotransfor*. **33** (2015) 81 |
| 3. Authors should present much more information about enzymes (both free and immobilized) before the usage of “new product” (immobilized enzyme) if it is not published earlier. | It has been already explained in our previous work and published in (S. Nisha, N. Gobi), *Biocatal. Biotransfor*. **33** (2015) 81 |
| 4. In my opinion it is necessary first to describe  in detail immobilization procedure, then in detail characterized the immobilized enzyme and compare with soluble form and then focused onto the condition of use the new biocatalyst and its effects on cotton. | The procedure for immobilization has been incorporated and elaborated procedure, characterization, and comparison between soluble and immobilized enzyme has been explained in our previous paper and it has been published in (S. Nisha, N. Gobi,) *Biocatal. Biotransfor*. **33** (2015) 81. |