

Degumming of Eri Silk Fabric with Ionic Liquid

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Abstract : Eri silk is a non mulberry silk which is obtained without killing the silkworms and hence it is also known as Ahmisa silk. In the present study, the results on degumming of eri silk with alkaline peroxide have been compared with those obtained by using ionic liquid (IL) 1-Butyl-3-methylimidazolium chloride [BMIM]Cl. Experiments were designed to find out the optimum processing parameters for degumming of eri silk by response surface methodology. The statistical software, Design-Expert 6.0 was used for regression analysis and graphical analysis of the responses obtained by running the set of designed experiments. Analysis of variance (ANOVA) was used to estimate the statistical parameters. The polynomial equation of quadratic order was employed to fit the experimental data. The quality and model terms were evaluated by F-test. Three dimensional surface plots were prepared to study the effect of variables on different responses. The optimum conditions for IL treatment were selected from predicted combinations and the experiments were repeated under these conditions to determine the reproducibility.

Keywords : silk degumming, ionic liquid, response surface methodology, ANOVA

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