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# Synthesis of blue dye from loganin: Its application in dyeing, ultraviolet protection of proteinous fabric and docking studies

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I ridoids are secondary metabolites produced by plants and some animals. These iridoids give colored pigments or dyes by a simple chemical process in the presence of primary amine, amino acids and protein-based substrate. The aim of the present work is mainly to study the blue colored dye, synthesized from an iridoid glycoside loganin from *Strychnos nux-vomica* and explore its application in textile industry. Another aim is to carry out computer-aided drug design (CADD) studies to determine the blue dye interaction with silk monomeric units. Isolated white loganin was converted to blue dye by one step chemo enzymatic reaction, wherein loganin was transformed to aglycone, loganetin which was further allowed to react with amino acids generating a blue colorant. The colorant was further studied for its application to dye proteinous fabric like wool and silk. Color strength, fastness properties and ultraviolet protection factor were evaluated. Mordanting studies were carried out using three different mordants. The fabric was also subjected to pre-mordanting, meta-mordanting and post-mordanting studies. Treated fabrics showed adequate wash, light and rubbing properties with and without mordanting. The treated silk and wool fabric showed good to very good ultraviolet protection property with mordanted fabric. The loganin, its aglycone and blue dye structures were subjected to molecular docking using Glide and SiteMap software.

#### **Biography**

Sapna P Patil has completed her PhD from Institute of Chemical Technology, Mumbai. She has worked on Iridoids, on its extraction, isolation and chemical derivatization. She has two years of pharma industrial experience.

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