

" Influence of Using Different cellulosic Materials on the Functional Properties of Bed Sheets Fabrics."

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Abstract:

Recently, there has been an increasing demand for the use of plant fibers that combine the properties of comfort as well as functional performance during use. Among the most important of these fibers are new plant fibers, bamboo fibers, tencel, and modal. These fibers are characterized by their high ability to provide a sense of physiological comfort, in addition to their distinction in Functional properties over conventional fibers such as cotton. In view of the natural and mechanical properties of these new fibers that make them superior to those of traditional plant fibers, the research tended to take advantage of these raw materials and employ them in the production of bed linen fabrics, due to the need for these fabrics in terms of the availability of physiological comfort properties while preserving the characteristics of functional performance. natural and mechanical. The research relied on the production of 8 samples with four textile materials for wefts (cotton, bamboo, tencel and micromodal), and using two textile structures (Plain 1/1, Satin 5). Laboratory tests were conducted on these samples and compared with cotton to clarify the extent of the change in the use of wefts from new plant fibers on the functionality of bed sheet fabrics. The type of raw materials used in the production of fabrics and their properties is considered one of the important applied elements in controlling the type and quality of the product because of its effective impact on its properties and on the efficiency of its functional performance. The nature of the raw materials used in the production of upholstery fabrics is one of the important factors influencing the methods of employing and using these fabrics. The nature of the raw materials used is determined according to their aesthetic effects and the characteristics they give such as drape in curtain fabrics and friction resistance in upholstery fabrics, in addition to other characteristics of mattress fabrics and others (1) . Environmental issues have become at the present time one of the main factors during the selection of consumer goods , and therefore these environmental considerations have received great attention when developing textile products than before, as attention has been directed towards the development of environmentally friendly, renewable and biodegradable textile fibers, that is, materials that can It decomposes naturally into simpler substances such as elements and compounds . Therefore, we find that recently, the demand for cotton fibers has increased, but its low production rate cannot meet global requirements. The increase in demand for cotton has led to an increase in the production of renewable cellulosic fibers such as bamboo, modal, and tencel (4).

Research Problem: The increase in demand for raw cotton in recent times, with a decrease in its production rate, so that it does not meet the international requirements, which makes us think about finding alternative materials that are environmentally friendly. The scarcity of scientific research that discusses ways to benefit from different cellulosic fibers (bamboo, tencel, micro modal, and others) and their use in bed linen fabrics. The need to develop the physiological comfort properties and functional performance of bed sheets. The need for new natural raw materials to be used with cotton instead of mixing cotton with polyester, which does not provide the required softness during use, and is therefore liable to form static charges that in turn lead to a sense of discomfort.

Research Aims: Improving the functionality of bed linen fabrics produced from modern cellulosic fibers such as bamboo, tencel, and micromodal. Obtaining bed linen fabrics using modern fibers such as bamboo, tencel, and micromodal. Finding the most appropriate sample that achieves the best

physical and mechanical properties.

Research Importance: Preserving Egypt's position in the production of bed linen fabrics, due to the comparative advantage that the Egyptian product enjoys by using long-staple Egyptian cotton. Opening new markets for Egyptian bed linen products.

Research Hypothesis: The use of modern cellulosic fibers such as bamboo, tencel, and micromodal in the production of bed linen fabrics helps to improve the functional performance of these fabrics. The effect of textile structures on the functional performance properties of bed linen fabrics.

Research Methodology: This research follows the analytical and experimental method.

Keywords :

Bamboo fibers - Tencel fibers - Modal fibers - Bed sheet fabrics

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