

## **Development of Sustainable Composite Fabric from Orange Peel for Ladies' Undergarments: A Different Approach Towards Eco-Friendly Textile Design**

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**Abstract :** This research paper presents a different approach towards eco-friendly textile design by developing a sustainable composite fabric from orange peel for ladies' undergarments. The research focuses on utilizing orange peel to develop a unique orange leather/composite (fabric) through a process involving heating, extracting, and subsequent sun-drying to obtain the composite. The sustainable composite fabric shows properties that are favorable to the development of environmentally friendly undergarments, which not only offer UV protection but also possess healing properties for the skin. Through comprehensive testing and analysis, it has been determined that the orange peel composite fabric has zero harmful effects on the skin, making it a safe and desirable material for intimate wear. Furthermore, the research suggests that the orange peel composite fabric has the potential to reduce the rate of cancer cell growth. While the exact mechanisms and factors contributing to this effect require further investigation, the initial findings indicate promising aspects of the fabric in terms of potential cancer-preventive properties. Research contribution to the field of sustainable textile design by introducing a usual and eco-friendly approach utilizing orange peel waste. This work opens up avenues for further exploration and development of innovative materials that are both sustainable and beneficial for human health.

**Keywords :** sustainability, composite textiles, extracting, undergarments, eco-friendly, orange peels

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