

## DISPOSABLE FEMININE HYGIENE PRODUCTS: A MODIFIED VERSION OF NATURAL FIBRES BASED SUSTAINABLE UNDERWEAR

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### ABSTRACT

The hygiene sector is modifying the materials used in the development of quickly-disposed-of items. The term "disposable" in this context refers to items that are not meant to be cleaned, repaired, or worn again as clothing. When it's not feasible, easy or practical to wash underwear, disposable underwear are the best choice. As many things are made to be used only once before being thrown away, disposable underwear would be quite handy for travelling and swimming. Disposable underwear consumption usually varies depending on demands, preferences, and intended use. Disposable sanitary goods replaced, reusable ones in the medical field, but people are now migrating towards the creation of biodegradable sanitary products in the context of sustainability. Natural fibres are the sole sources needed to achieve the sustainability concept, where cotton is the most sustainable natural fibre followed by bamboo, banana and ramie and so

forth. Moisture is absorbed by cotton, while banana fibre exhibits bacteriostatic qualities. The strongest material is banana and bamboo, which also manages moisture well. The market has seen long-lasting changes as a result of the usage of biodegradable materials. Thus, the development of eco-friendly products and growing environmental consciousness are important factors propelling the consumer product market, which includes the innerwear market. This paper throw idea about the need for disposable underwear, benefits, suitable fibres and its market potential.

**KEYWORDS:** Disposable, Medical field, Underwear, Natural fibres, Feminine hygiene.

## INTRODUCTION

The hygiene sector, which creates disposable products like sanitary napkins, underwear, and diapers, is also altering the materials used in its production. Many of these products, which are composed of biodegradable materials and have similar qualities to those derived from synthetic sources, are already on the market for customers. They include breathability, comfort, anti leakage, protection, barrier, and antibacterial qualities. The psychology of women is closely correlated with their usage and comfort. Women have panties preference based upon aesthetic or functional expectations.<sup>[1]</sup> Panties comfort is a very important issue for apparel industry, as it affects customer satisfaction. Female underwear market has a great impact for the Textile industry and the consumer.<sup>[2]</sup> Disposable underwear is a form of undergarment designed to be used / worn once and then thrown away. The products that help stop or control the transmission of germs are frequently those related to healthcare and cleanliness. These products not only offer cleanliness and lack of infections, but they also help stop the spread of illness. It is always important and safe to have your basic hygiene products on hand and ready to use whenever you need them.<sup>[3]</sup>

**Need for disposable underwear** Disposable undergarments have a wide range of uses, both essential and optional. The need and usage of the underwear will vary depending on whether they are composed of cotton or polypropylene. It would be very useful to go swimming and travel with disposable underwear.<sup>[20]</sup> Packing traditional underwear for a vacation might be difficult because it usually takes up more space, needs to be washed and dried, and requires detergent. Additionally it requires a lot of time and place to finish these chores. Having travel-sized disposable underwear is the ideal choice if you plan to go on a multi-day backpacking trip are completely space-saving, require no washing or drying, and are readily disposed of. In addition, many swimmers are drawn to this disposable underwear, complimenting it on its small and convenient feel in the water,<sup>[4]</sup> because of its excellent quality and multipurpose use, female disposable underwear is undoubtedly the finest option for every women. It includes hygienic underwear as well as other products. Single-use underwear is more suitable for patients in hospital where it controls the germs in hygiene way.

### Benefits of disposable panty

- Disposable underwear are perfect to hospital applications, where it does not require washing, more hygiene and controls the growth of bacteria.

- Since damp underwear take longtime for drying, disposable underwear saves time. It does not require washing and drying.
- Disposable underwear eliminates the use old clothes, soiled and muddy underwear during the travel vacations.
- The skin irritations can be prevented by considering the materials composition, while purchasing. Disposable underwear should be comfortable, elastic, and soft material. Further the premium quality disposable underwear retains moisture and doesn't leak or discolour.

### **Fibres suitable for disposable underwear**

#### **Cotton fibre**

Cotton is still the "king" of fibres because most of the world's apparel is made of cotton. Cotton can be used to make appealing textiles because of its good wicking, comfortable, skin friendly, moisture-absorbing qualities. It also has a reasonably good strength. Cotton is a pure cellulose fibre that can be biodegraded.<sup>[5]</sup> In order to create flexible and breathable textile goods, it is most frequently spun into yarn or thread. It includes undergarments, boots and shoes, carpets and curtains, headwear, and apparel (Shirts, T-shirts, pants, jeans, etc.). Sweat is absorbed by cotton fabric and released onto its surface,<sup>[13]</sup> allowing air to flow easily through it because of this, wearing it in warm weather is comfortable.

#### **Bamboo fibre**

Bamboo fiber is incredibly elastic and contains natural antibacterial elements. Among the most grounded building materials is this one. Sewn underwear, T-shirts, shirts, mats, socks, towels, and shower robes are made out of bamboo fiber that are used for hygiene; décor items include curtains, television covers, wallpaper, and couch slipcovers; and sanitary supplies include bandages, masks, surgical gowns, nurse uniforms, and so forth.<sup>[6]</sup> Bamboo performs bacteriostatic and antibiosis functions. When the fabric gets wet, bamboo fiber wicks away moisture to prevent skin cling and dries quickly to make feel more comfortable and cooler while wearing it. Banana fibre is naturally absorbent and wicks away moisture up to four times faster than cotton.<sup>[7]</sup>

#### **Banana fibre**

One of the strongest natural fibers on the market is banana fiber. Banana fiber and ramie fiber have a similar physical structure.<sup>[8]</sup> Because it absorbs and releases moisture so quickly, this

fiber has enormous ability to absorb moisture. It is harmless to the environment, biodegradable and eco-friendly. Medical gowns, surgical masks, and other textiles are frequently produced and used. Banana fibers are being used more frequently in clothing and home furnishings as a result of the growing development of sustainable textile products. Banana is strongest when compared to cotton and bamboo.

### **Market need for disposable under wear**

Luxury products are in greater demand due to the launch of infection-free products and the usage of innovative fibre materials. As reported by the Arizton advisory and intelligence Market (October 2019) for Disposable Underwear Expected to Grow at a 7.6% CAGR and Reach USD 16.3 Billion by 2032,<sup>[9]</sup> Growing applications in multiple industries, rising hygienic consciousness, and changing customer preferences are all contributing to the market's remarkable rise for disposable underwear.<sup>[11]</sup> Convenience, comfort, and hygienic advantages have made these single-use underwear items increasingly popular. Market size for disposable underwear is expected to reach USD 2.12 billion by 2024, expanding at a 6% compound annual growth rate throughout the forecast period. The worldwide disposable innerwear industry is experiencing significant expansion due to growing consumer awareness of eco-friendly disposable underwear.<sup>[12]</sup> The market has seen long-lasting changes as a result of the usage of biodegradable materials. Thus, the development of eco-friendly products and growing environmental consciousness are important factors propelling the consumer product market, which includes the innerwear market. Another significant aspect influencing the dynamics of the worldwide market is innovation in manufacturing.<sup>[14]</sup>

### **CONCLUSION**

The goal of vendors is to create eco-friendly items that can replace traditional innerwear, as a result, innovation is having a bigger impact on consumer demand. The market is also being driven by a rise in awareness of hygiene and health.<sup>[10]</sup> The need to prevent infections and ensure the safety of the mother and child after delivery is driving up demand for maternity services. Moreover, throughout the forecasting period, a rising birth rate and the growth in vendor-maternity hospital strategic alliances are anticipated to drive growth in the disposable innerwear market for maternity care.<sup>[15,16]</sup> In addition, suppliers are thinking about creating high-end, branded goods in order to meet future demand from upscale maternity hospitals. The global disposable innerwear market is expected to grow at a CAGR of over 6% during the period 2018- 2024. Environmental impact has lessened through natural fibres than

synthetic fibres in textile industry. Natural fibres require fewer chemicals, less water for processing, and generate fewer greenhouse gas emissions. For every woman, disposable underwear is essential because of its natural fibre composition, which not only makes them feel more comfortable to wear but also lessens the risk of infection.

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