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RESEARCH ON DEVELOPING A CONCEALED UNIFORM SKIRT WITH FINISHINGS

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ABSTRACT

This is a solution for the major problem girls face during their mensuration during school as most of the girls are not ready to face it. As a result, in this research, I have found a possible solution, that is I have created a uniform skirt which protects from leakage stain and the stain won't be visible from outside. As the skirt has two layers, one to absorb the leakage and the another one hides the satin.

Keywords: Mensuration, Neem oil *(Azadirachta indica),* **Turmeric oil** *(Curcuma longa),* **Aloe vera gel**

INTRODUCTION

This research is to determine the problem and to evaluate the various factors associated with the girls absent from school during their menstrual times. Then to overcome the fear and to bring a simple and possible solution for their problem. More than half the schools in low-income countries either lack sufficient toilets for girls or they are frequently not very clean. A number of researchers and policy makers have discussed the constraints menstruation puts on school attendance and attainment. World bank showed that girls could miss up to four consecutive days of school every month because of their periods, meaning that they missed 10%-20% of school time, which seriously impacted on their achievement. This is due to poor menstrual hygiene management caused by both lack of information, privacy, washing facilities, and sanitary pads. According to the world health organization, the availability of adequate clean water and hygiene in schools is essential for nearly all the millennium development goals, especially in the achievement of universal primary education, reduction of child mortality, and the promotion of gender equality. Poor sanitation at school greatly affects girls, especially menstruating girls, and further creates an unfriendly school environment for them. These challenges posed by poor hygiene management will continue to jeopardize the potential of girls and the realization of many United Nations Millennium Development Goals if they are not properly addressed. The girls who wear Uniform Skirts couldn't hide the stain. So, they have to carry their bag wherever they go to hide it or they should take help from friends. They may feel insecure all the time. This is the problem I have identified. There is a simple and practical solution in the construction of the skirt. Here, I like to add extra cotton layer under the pleated skirt. And giving anti-bacterial and water repellent finish to the pleated layer. The pleated layer will have slit on each side of the skirt. Which makes them comfortable when they sit, they could sit on the skirt by taking of the upper layer. So, if the inner layer of the skirt gets stained the upper layer can be used to cover it. This construction won't affect the basic look of the uniform skirt.

METHODOLOGY

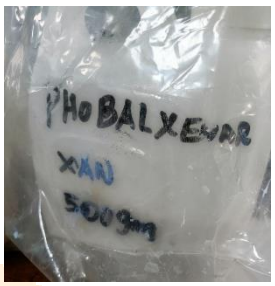
A primary survey was done to know more details directly from the students. Through this survey, most of the girls suffer this problem and they had accepted this idea of concealed skirt. Fabric finishing is a series of mechanical and chemical processes that are performed on woven and knitted fabrics to improve the overall quality and essentially make them presentable to market. The various types of finishing treatment with resin are: Anti-crease finish, Wash-and-wear finishing. The process by which the appearance and quality of the fabrics is improved is called fabric finishing. It also increases fabrics resistance to laundering and wear. The operations involved in fabric finishing vary depending on the texture and the purpose of the fabrics. Water repellent finishing and Antibacterial finishing is done on the garment. Water repellent finishing is done using dip coating machine and it is done by wetting of solid surfaces by water droplets is ubiquitous in our daily lives as well as in industrial processes. A simple dip coating technique is adopted to coat silica films on the glass substrates. The superhydrophobic silica films are prepared by retaining their super hydrophobicity up to a temperature of 285°C and above this temperature the films became super hydrophilic. The porous and water repellent silica films are prepared by proper alteration of the Ph-TMS in the coating solution. Water-repellent finishes are surface finishes imparting some degree of resistance to water but are more comfortable to wear because the fabric pores remain open. This finishing is done on the outer layer of the skirt, this layer has more gsm. This repels the leakage spreading from the inner layer of the skirt, so the stain won't be visible and they would feel safe and secure. Antibacterial finishing is done using padding method. It is employed in medical devices like medical tools, instruments, devices, machines. It is also used in health care sector, and devices. These finishes have important role in water purification system. In dental hospitals these finishes are profusely used for killing the germs and microorganism. Fabrics treated with an antibacterial finish offer additional protection against bacteria and mold. Unlike synthetic fibers' natural resistance to microbial growth, these chemical finishes are designed to actively inhibit growth or eliminate bacteria or fungi. Neem oil, Turmeric oil and aloe vera gel are used for this finishing. This finishing is done on the inner layer of the skirt to get rid of the rashes and itches.

Aloe vera gel is given to make them feel comfortable about the heat their body produce at that time. This layer will absorb the leaked blood as cotton fabric has been used as it has good absorbent property. Neem oil (Azadirachta indica), also known as margosa oil, is a vegetable oil pressed from the fruits and seeds of the neem tree which is indigenous to the Indian subcontinent and has been introduced to many other areas in the tropics. It is the most important of the commercially available products of neem and is used for organic farming and medicines. The neem oil offers antibacterial activity against pathogenic Vibrio and the nano formulation of neem oil will help to enhance the antimicrobial property and stability. Neem oil has a history of use in Ayurveda folk medicine. There is limited evidence for its use in treating acute skin toxicity in head and neck cancer chemotherapy involving cisplatin. Turmeric oil (Curcuma longa) has been traditionally used as an antiseptic, antibacterial, anti-inflammatory, choleretic, and carminative agent in the treatment of wounds and burns, gastrointestinal and liver disorders, respiratory system diseases (e.g., asthma, cough, runny nose, sinusitis), anorexia, and rheumatism. It has strong antibacterial and antiseptic agent that may be beneficial for application to areas of minor burns, cuts, bites, and bruises. cleanse, clarify, soothe, calm, invigorate, and brighten the skin. Generally, it supports skin health. The overall findings of the study revealed that the addition of turmeric was associated with increasing bacterial growth, with increasing turmeric solution concentration. Aloe vera gel, Aloe-infused fabric repels cold and moisture from the outside and allows a large number of pores to filter through the breathable fabric, ensuring steady evaporation of sweat. Aloe-infused fabric is cool and textured for comfort. Aloe Vera gel has cooling properties and is anti-inflammatory. Hence, it is one of the most natural remedies for sunburn or burnt skin. Applying this gel helps with a protective layer for the skin, and it also helps to retain moisture. It is rich in antioxidants and minerals that boost the healing process. Aloe vera gel has cooling properties which help soothe irritated skin affected by sunburn, rash, infection, redness, and itchiness. Thus, it makes for a super ingredient for sensitive skin. Also, its antifungal properties help in handling inflammation skin issues such as heat boils and cysts in summers.

A non-fluorinated durable water repellent finish for textiles of cellulosic, synthetic and synthetic cellulosic. It displays excellent water repellent and rainproof finishing including preventing water-based stains from penetrating substrates. It displays excellent water repellent and rainproof finishing with additional soft hand and improvement of running properties and increased hydrostatic pressure including preventing water-based stains from penetrating substrates. A good protection against liquid chemicals for Personal Protective Equipment (PPE) suitable on substrates for synthetic, cellulosic and synthetic/cellulose fabrics. It exhibits good repellency against various liquid chemicals and oil repellency and water-based stains penetrating substrates. An oil, water and stain repellent finish specifically developed for cotton, viscose, cellulose/synthetics. It displays an excellent barrier effect. It prevents oil, alcohol or water-based stains from penetrating into the substrate. The skirt is construction with two layers, inner layer absorbs the blood and holds the stain. This layer has the anti-bacterial and cooling finishing. The outer layer hides the stain and will not absorb the leaked blood as it has water repellent finishing. This skirt will help girls to hide the stains and to get rid of their fear of leakage.

After finishings and construction of the garment, it is given to the school students to study about the project. Dip coating is also known as slurry or vacuum slurry dip coating. This method is usually used for fabricating functional layers. Similarly, to the screen-printing method, this method uses slurry in the fabrication process. The slurry is a combination

of ceramic powder, solvent, binder, and dispersant. In the dip-coating method the



supporting layer is soaked in the slurry. Then the slurry jar comes down (or the supported layer comes up) and a film of slurry attaches to the supporting layer. After the coated slurry is dried in ambient temperature the supported layer with its new dip-coated layer are sintered. The smoothness and thickness of the layer can be controlled by modifying the solid loads in the slurry and the draw-up speed of the supporting layer from the slurry jar. Layers with the thickness of a few microns to hundreds of microns can be produced using this method. The usual duration for soaking the supporting layer in the jar initially is about 30 seconds. The density of the electrolyte layer coated on the anode-supported layer in a tubular SOFC is highly affected by the shrinkage of the sublayer during the process.

Durability testing involves chemical and physical tests, among which are measuring fabrics' resistance to abrasion and pilling, tear resistance, strength and elasticity, felting and shrinkage. Abrasion testing is the act of rubbing a material at a specific weight and speed to determine at what point the material begins to wear. In the textile industry, this becomes necessary when trying to ensure your fabrics will stand up to everything life may ask of them. Water repellency testing is done to measure the resistance of fabrics to wetting by water. It is especially suitable for measuring the water-repellent efficacy of finishes applied to fabrics. AATCC 61 is used to evaluate the colorfastness to laundering of textiles expected to withstand frequent launderings. This method allows an evaluation of color loss and surface change by using a detergent solution and abrasive action- the method specified in ASTM F1506 (Method 2A) is used to evaluate colorfastness in an accelerated manner to replicate 5 home laundering procedures at a medium or warm setting (100F° +/- 5°F). Test specimens are attached to multi-fiber swatches and stainless-steel balls are loaded into stainless steel canisters to replicate abrasion. The canisters are then loaded into the machine and the 45-minute test begins. After laundering, specimens are dried, conditioned, and evaluated with both the Gray Scale for Color Change and the Gray Scale for Staining.

CONCLUSION

As a result, this skirt is most useful and these finishes last for about more than three to four washes. This skirt is comfortable and unique. Antibacterial finishing is skin friendly and the aloe vera gel makes the skin feel cool from body heat at that time. Finally, I have done a study on the skirt's usage property. I gave the skirt to students and asked them to wear during their menstrual time to check the stains on the skirt. The leaked blood is absorbed in the inner layer and it is not been absorbed on the outer layer. This project was successful and this is for further studies.

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