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Enlarge the Ride Jacket with Cotton using Nithyakalyani [Cantharanthus roseuse] and Aloevera [candelabra aloe]

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INTRODUCTION:

1.1 One Modern society and physical structures that are known for their sustainability and comfort depend heavily on textile fibers. In nature, man is a friend of fashion. The growth of textile fiber production and textile manufacturing processes was influenced by the need for better clothing and accessories. In terms of comfort and fashion, natural textile fibers primarily satisfy human consumption standards. The three main natural fabrics used to make clothing for humans were cotton, wool, and silk. A textile is a pliable substance made by weaving together skeins, threads, or natural or synthetic fibers. Textiles are used to make a variety of goods, such as carpets, upholstery, clothes, and industrial materials. They can be knitted, woven, braided, or nonwoven. Important Features of Textile Flexibility Because of their flexibility, textiles can be stretched, folded, and bent without breaking. Sturdiness Textiles can tolerate a range of environmental conditions and are resilient to deterioration. The porosity Because textiles are permeable, materials like water and air can flow through them. Aesthetics Textiles are aesthetically pleasing because they may be made with a variety of textures, colors, and patterns. Textile Types Cotton, linen, silk, wool, and other fibers that come from plants and animals are examples of natural textiles. Polyester, nylon, acrylic, and other fibers made from chemical compounds are examples of synthetic textiles.

1.2 Protective textiles are specialized fabrics engineered to safeguard against a range of hazards, including heat, flames, chemicals, and physical injuries. These materials are designed to ensure safety and security across various sectors, such as industrial, military, medical, and outdoor activities. Categories of Protective Textiles are Flame-Resistant Textiles These fabrics are formulated to resist ignition and extinguish themselves when exposed to flames. They are frequently utilized in firefighting equipment, industrial apparel, and aircraft interiors. Chemical-Resistant Textiles Treated with substances that repel or neutralize harmful chemicals, these textiles are commonly found in chemical plants, laboratories, and healthcare facilities. Ballistic-Resistant Textiles Designed to absorb and disperse the impact energy from bullets, shrapnel, and other projectiles, these materials are typically used in body armor, vehicle protection, and fortification structures. Cut-Resistant Textiles Engineered to withstand cutting and slashing from sharp objects, these textiles are often incorporated into gloves, sleeves, and aprons for industrial and medical use. Thermal Resistant Textiles These fabrics provide insulation and protection against extreme temperatures and are commonly used in firefighters' gear, astronaut suits, and cold-weather apparel.Applications of Protective Textiles Industrial Safety Protective textiles are essential in industrial environments, shielding workers from

hazardous materials, equipment, and conditions. Military and Defense In military applications, these textiles are integral to uniforms, body armor, and vehicle protection, safeguarding soldiers from ballistic threats and harsh environments. Medical Settings: Protective textiles are vital in healthcare, offering protection to medical personnel from infectious diseases, chemicals, and other risks. Outdoor and Sports: These textiles are utilized in outdoor gear and sports equipment, providing athletes with protection against injuries and extreme conditions.

1.3 Fleece is a lightweight, breathable, and quick-drying fabric commonly utilized in activewear and loungewear due to its softness, comfort, and performance attributes. This versatile textile is highly regarded for several key characteristic Softness Fleece is renowned for its remarkable softness and ability to retain warmth. Lightweight The material is lightweight, making it suitable for activewear and outdoor apparel. Breathability Fleece allows for adequate airflow and moisture wicking, which aids in maintaining body temperature. Warmth It serves as an effective insulator, offering warmth without excessive bulk. Durability Fleece is typically durable and resistant to wear and tear Applications of Fleece Fabric are Activewear Fleece is frequently chosen for activewear items such as jogging pants, hoodies, and sweatshirts. Outdoor Clothing It is commonly used in outdoor garments, including jackets, hats, and gloves. Loungewear Fleece provides a cozy option for loungewear, including sweatpants and hoodies. Blankets and Throws Its

softness and warmth make fleece a popular choice for blankets and throws. Crafting Fleece is widely used in crafting projects, such as creating hats, scarves, and various accessories. Types of Fleece Fabric Polarguard Fleece A high-quality, dense fleece known for its excellent warmth and durability. Microfleece A lightweight, fine fleece characterized by a soft, smooth texture .Sherpa Fleece A thick, plush fleece with a shaggy texture, often utilized in jackets and hoodies. French Terry Fleece: This type features a soft, looped texture on one side and a smooth surface on the other. While fleece fabric can offer some degree of UV protection, this is not its primary purpose. it can be treated with UV-blocking technologies or combined with other materials to enhance its protective capabilities against UV rays.

1.4 Nithiyakalyani leaves, commonly referred to as "Night-Blooming Jasmine" or scientifically as "Cestrum nocturnum," originate from a flowering plant found in the tropical areas of Central and South America. Its botanical classification is Cestrum nocturnum, belonging to the Solanaceae family, also known as the Nightshade family. The leaves are characterized by their simple, alternate arrangement and elliptical shape, featuring a pointed tip and smooth edges. Typically, they exhibit a dark green hue and possess a glossy surface. Traditional Applications Nithiyakalyani leaves have been utilized in traditional medicine for a variety of ailments,

including fever, rheumatism, and skin disorders. They are thought to possess antioxidant, anti- inflammatory, and antibacterial properties. Antioxidant Properties These leaves are known for their antioxidant capabilities, which aid in safeguarding the body from free radicals. Anti- inflammatory Properties The anti-inflammatory characteristics of the leaves may assist in alleviating inflammation and discomfort. Antibacterial Properties Nithiyakalyani leaves are recognized for their antibacterial effects, which may help in preventing infections. Benefits for Skin The leaves are believed to offer advantages for skin, such as reducing acne.Sun Protection in Riding Jackets Sun protection is a crucial aspect of riding jackets, particularly for motorcyclists who spend considerable time outdoors. UPF-rated Fabrics Many riding jackets are constructed from UPF-rated materials that effectively block UV radiation. Built-in Sunshades Certain riding jackets feature integrated sunshades or visors that enhance sun protection. Reflective Materials Some riding jackets include reflective elements that help deflect sunlight and minimize heat accumulation.

1.5 Aloe Vera (Aloe barbadensis miller) is a succulent plant that belongs to the Liliaceae family and is indigenous to Africa. This plant has been utilized for centuries for its medicinal, cosmetic, and culinary applications. The benefits of Aloe Vera are numerous Soothes Skin Irritations The gel derived from Aloe Vera possesses anti-inflammatory and calming properties that can alleviate skin irritations, including burns, eczema, and acne. Hydrates Skin Rich in vitamins A, C, and E, as well as essential minerals like calcium and potassium, Aloe Vera effectively hydrates and nourishes the skin. Promotes Hair Growth Aloe Vera has been found to enhance hair growth by improving blood circulation, minimizing dandruff, and alleviating an itchy scalp. Supports Digestive Health: Aloe Vera juice contains anti-inflammatory properties that may assist in soothing digestive issues, such as irritable bowel syndrome (IBS). Boosts Immune System: The vitamins and minerals present in Aloe Vera can strengthen the immune system and provide protection against infections. Reduces Inflammation: Aloe Vera's anti-inflammatory characteristics may help diminish inflammation and relieve conditions such as arthritis. Supports Oral Health: With its antibacterial properties, Aloe Vera may aid in reducing plaque, preventing tooth decay, and soothing mouth sores. May Help Lower Blood Sugar: Some research indicates that Aloe Vera may assist in lowering blood sugar levels in individuals with type 2 diabetes. Aloe Vera is a multifaceted plant that provides a variety of benefits for skin, hair, digestive health, and overall wellness.

1.6 UV protection testing, often referred to as ultraviolet protection testing, encompasses a series of laboratory assessments aimed at determining the effectiveness of fabrics, textiles, and materials in shielding against harmful ultraviolet (UV) radiation emitted by the sun. The primary objective of these tests is to evaluate the degree of protection a fabric or material offers against UV radiation, which is known to contribute to skin damage, premature aging, and an increased risk of skin cancer. There are two principal categories of UV protection testing: UPF (Ultraviolet Protection Factor) Testing, which quantifies the amount of UV radiation that penetrates a fabric, and UV Transmittance Testing, which measures the quantity of UV radiation that is allowed to pass through a fabric.

1.7 Qualitative testing is an evaluation approach that examines the characteristics, properties, or attributes of a product, material, or system using non-numerical methods. This process relies on subjective assessments, observations, and descriptions to evaluate the quality, performance, or behavior of the item in question. The main objective of qualitative testing is to collect information regarding a product or material's physical properties (such as texture, color, and odor), performance characteristics (including durability, flexibility, and comfort), functional attributes (like usability, safety, and reliability), and sensory attributes (such as taste, smell, and tactile feel).

1.8 Antibacterial testing, often referred to as antimicrobial testing, is a laboratory procedure designed to evaluate how effectively a material, product, or surface can prevent the growth of bacteria, fungi, and other microorganisms. The main objectives of antibacterial testing include assessing the effectiveness of antimicrobial agents or treatments, evaluating the resistance of materials or products to microbial proliferation, identifying potential antimicrobial activity for various applications, and ensuring adherence to regulatory standards and guidelines. Common methods used in antibacterial testing are the Agar Plate Method, which measures the zone of inhibition surrounding a sample, and the Suspension Test, which assesses the decrease in microbial population.

1.9 UV Spectrum Test is a laboratory analysis that assesses how a material or substance absorbs, transmits, or reflects ultraviolet (UV) radiation. The objective of this test is to evaluate the stability of materials under UV exposure, quantify their UV absorption, transmission, or reflection, and characterize their properties. UV-Vis Spectroscopy focuses on measuring absorption and transmission within both the UV and visible light spectra, while UV Reflectance Spectroscopy specifically examines the reflection of UV radiation.

1.10 Physical testing, often referred to as physical evaluation or physical analysis, is a laboratory assessment technique that examines the physical attributes, characteristics, and functionality of a material, product, or system. The main objectives of physical testing include evaluating the physical properties of a material or product, assessing its performance under different conditions, and determining its appropriateness for a particular application

OBJECTIVES:

To Consider the properties of Nithyakalyani leaves.

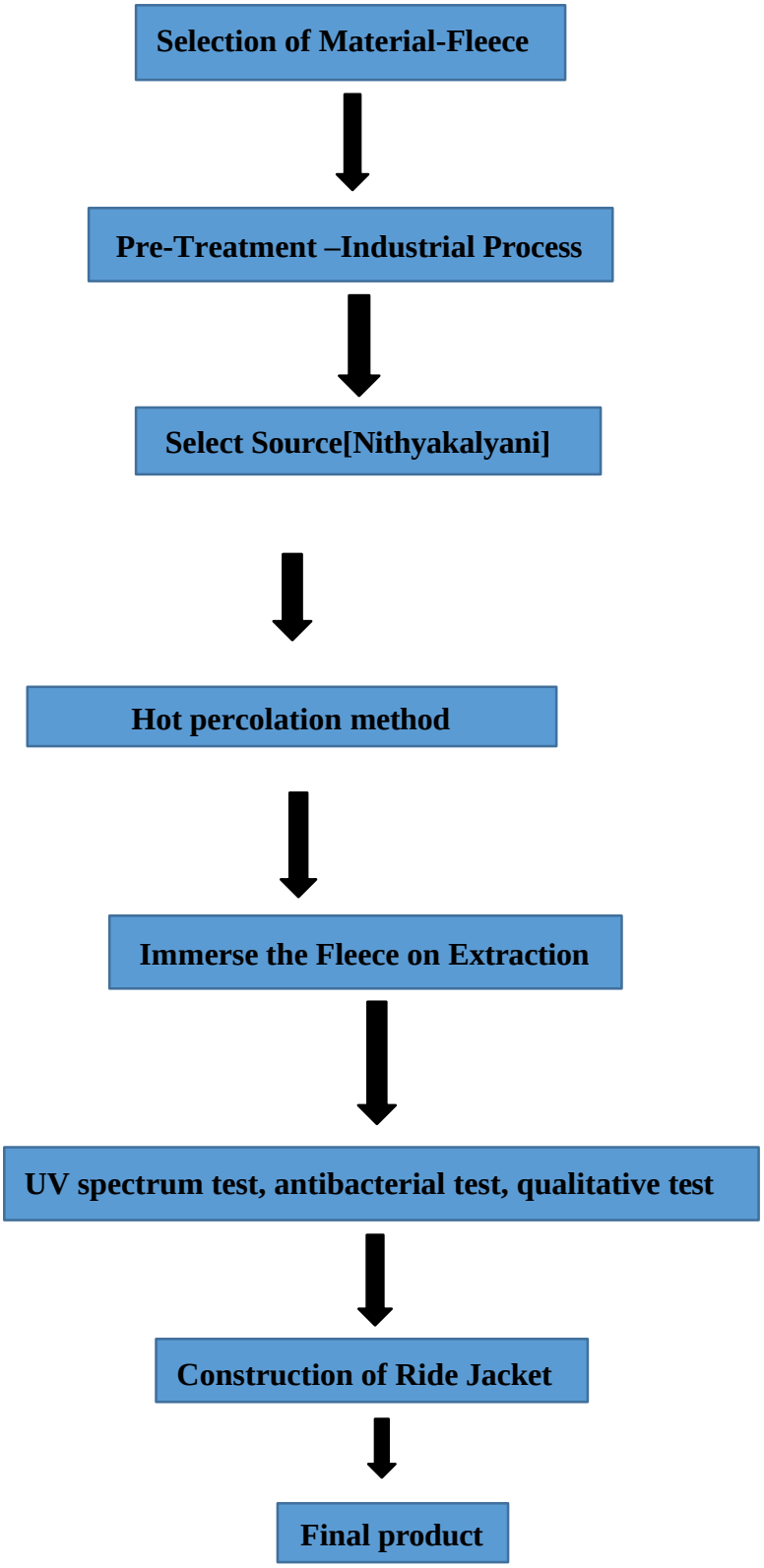
To Find out the fleece Material.

To Treat the Nithyakalyani and Aloevera by extraction method

To Develope a Rider Jacket.

Analyze the final product and test them out by the people.

METHODOLOGY;



SELECTION OF FABRIC;

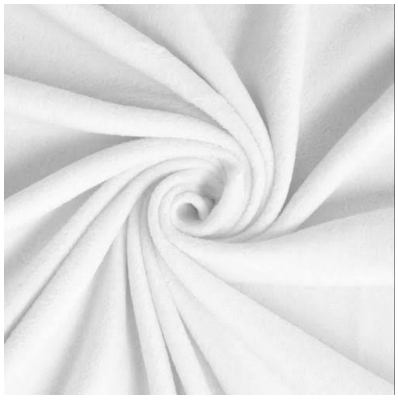


PLATE-1

The selection of fabric plays a crucial role in the product development process, emphasizing the importance of fabric sustainability and aesthetics. A wide range of materials is available in the market, including cotton, fleece, silk, wool, and others. Cotton is often utilized for medical applications, while fleece is recognized as a widely favored material. Fleece, a synthetic insulating fabric crafted from polyester, is celebrated for its softness, warmth, lightweight nature, and breathability. The advantages of fleece include its excellent insulation and warmth, surprising lightweight quality that enhances wearability, exceptional softness and comfort, effective airflow and moisture-wicking capabilities, and overall durability that resists wear and tear. Additionally, a UV test assesses fleece's ability to withstand degradation from ultraviolet light.

PRE TREATMENT PROCESS;

The hote wate treatment is carred out

PLATE-

SELECTION OF HERBS;

Nithiyakalyani is a remarkable herb that has been widely utilized in Ayurveda since ancient times, celebrated for its exceptional therapeutic properties and diverse applications. In traditional medicine, Nithiyakalyani is valued for its numerous health advantages, including its ability to provide UV protection. This plant is abundant in antioxidants, which play a crucial role in safeguarding the body against free radicals. Additionally, Nithiyakalyani possesses anti-inflammatory characteristics that can alleviate pain and swelling. It is also employed to support digestion and address digestive concerns. Furthermore, Nithiyakalyani is thought to offer skin benefits, including the reduction of acne.

PLATE-3 **PLATE-4**

Aloe Vera is rich in various compounds, such as aloin, aloe-emodin, and vitamins A, C, and E, which offer natural protection against the sun. These compounds effectively absorb UV radiation, thereby minimizing the penetration of harmful rays into the skin. Additionally, the antioxidants present in Aloe Vera help neutralize free radicals generated by UV exposure, which can harm skin cells and contribute to premature aging. The anti-inflammatory and soothing properties of Aloe Vera are beneficial in alleviating sunburn, as they help reduce redness, swelling, and discomfort. Although Aloe Vera provides some level of sun protection, its SPF (Sun Protection Factor) can vary based on the concentration and formulation of the gel. Generally, Aloe Vera gel is associated with the following SPF ratings:

20-30: Low to moderate protection

30-50: Moderate to high protection

For optimal sun protection, it is advisable to use Aloe Vera in conjunction with other protective measures, such as seeking shade, wearing protective clothing, and applying a broad-spectrum sunscreen with a higher SPF. The Nithiyakalyani variety of Aloe Vera can be easily cultivated in gardens and is sourced from Trichy.

SELECTION OF EXTRACTION PROCESS;

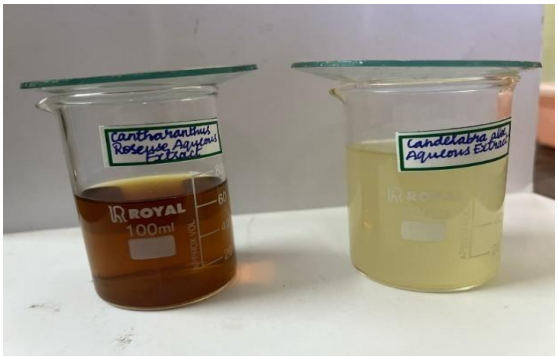


PLATE-5

This method is particularly useful when the target compound has low solubility in a given solvent, while the impurities remain insoluble. It efficiently recycles a minimal quantity of solvent to extract a significant amount of material, allowing for operation that is both uncontrolled and unmonitored.

WORKING PROCEDURE; (hot percolation method)

- Sample Preparation: Begin by grinding or crushing the sample into a fine powder.
- Loading the Percolation Apparatus: Introduce the sample and solvent into the percolation apparatus.
- Heating the Mixture: Heat the mixture to the required temperature, typically ranging from 50 to 100°C.
- Percolation Process: Allow the solvent to pass through the sample, facilitating the extraction of the desired compounds.
- Condensation: Utilize a condenser to condense the solvent vapor, enabling the collected compounds to accumulate in the collection vessel.
- Extract Collection: Gather the extracted compounds in the designated collection vessel.
- Solvent Evaporation: Remove the solvent from the extract through heating or vacuum methods.
- Final Extract: Acquire the final extract, which is suitable for subsequent analysis or processing.

SELECTION OF FINISHING PROCESS;

The finishing process employs the dip and dry technique. Immerse the fleece fabric in a solution made from Nithiyakalyan leaves and aloe vera for several hours within a sealed container. This method enables the fabric to absorb the advantageous properties of both the Nithiyakalyan leaves and the aloe vera. Once soaked, dry the fabric in a well-ventilated space, ensuring it is kept out of direct sunlight to prevent fading or damage. Allow the fabric to dry thoroughly.

Antibacterial test;

A method designed to evaluate the capacity of a material or product to prevent the proliferation of bacteria and other microorganisms. The objective is to assess the antimicrobial characteristics of the material or product, confirming its effectiveness in hindering the growth of microorganisms that may lead to illness or infection. Various types of antibacterial tests include the agar plate method, suspension test, zone of inhibition test, and minimum inhibitory concentration (MIC) test.

Qualitative test;

Qualitative testing is a laboratory assessment technique that examines the characteristics, properties, or attributes of a material or product using non-numerical approaches. The objective is to assess the sensory qualities, visual attractiveness, or functional effectiveness of a material or product. Various types of qualitative tests include visual inspection, tactile assessment, olfactory evaluation, taste testing, and user experience evaluation.

UV Spectrum Test:

A UV Spectrum Test, commonly referred to as Ultraviolet Spectrophotometry, is a laboratory procedure designed to assess how a material or substance interacts with ultraviolet (UV) radiation through absorption, transmission, or reflection. This test evaluates the stability of the material when subjected to UV radiation, quantifies the UV radiation absorbed, measures the amount transmitted through the material, and analyzes the level of reflection exhibited by the substance.

Physical test;

Encourage individuals to don the UV protection jacket and gather their feedback. A motorcycle jacket is a crucial garment.
Review:

I am thoroughly pleased with this riding jacket. Its blend of safety features, comfort, durability, and UV protection makes it a superb option for anyone who frequently rides their motorcycle. Rating: 5/5 stars
Safety measures are included; (pocket)

- First aid kit
- Phone

- Torch light
- Snacks
- Water bottle
- Bike tools.

PREPARING THE FINAL SAMPLE END PRODUCT;

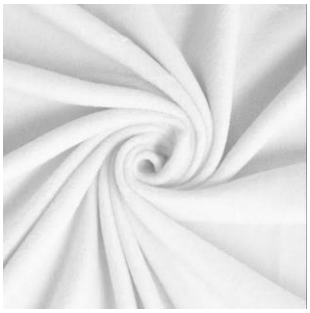


PLATE-10

PLATE-13

PLATE-11

PLATE-12

RESULT AND DISCUSSION;

QUALITATIVE TEST; PHYTOCHEMICAL ANALYSIS

OBJECTIVE;

Qualitative analysis used to identify the primary and secondary metabolites (natural compounds) from the plants extracts.

MATERIALS AND METHODS;

Qualitative analysis of phytochemicals

- **Test for terpenoids (Salkowski test)**
- Take 2 ml of extract , add 2 ml of chloroform to it foll
- owed by the addition of 2 ml of concentrated sulphuric acid .The presence of terpenoids is confirmed by a reddish brown colouration of the interface
- **Test for flavanoids**
- To the 2 ml of extract,a few drops of 10% lead acetate solution is added. The presence of flavanoids is indicated by the yellow colouration.
- **Test for saponin** (Foam test)
- Take 2 ml of extract in a test tube, to that add 2 ml of distilled water. Then the solution was vigorously shaked and observance is made for a stable persistent froth. Then it is observed for the formation of emulsion, after a vigorous shaking of mixture of frothing with 3 drops of olive oil.
- **Test for tannins** (Braymer's test)
- To the 2 ml of extract 2 ml of distilled water was added followed by a filteration. Then add a few drops of 0.1% ferric chloride to the filtrate. The formation of a green precipitate indicates the presence of tannins.
- **Test for alkaloids** (Hager's test)
- Add a few drops of Hager's reagent to the 2 ml of extract, and shaked gently to separate the alkaloidal base. The occurrence of yellow precipitate shows the presence of alkaloids.
- **Test for steroids** (Salkowski test)
- Take 2 ml of extract,to that add 2 ml of chloroform and few drops of concentrated sulphuric acid The observance of a reddish brown ring shows the presence of steroids.
- **Test for Glycosides** (Liebermann's test)

Add 2 ml of chloroform and 2 ml of acetic acid to the 2 ml of extract .Violet to blue or green indicates the presence of glycosides.

- **Test for phlobotannin**
- To the 2 ml of extract add few drops of HCl. The presence of phlobotannins is confirmed by formation of red precipitate.
- **Test for proteins** (Xanthoprotein test)
- Take 2 ml of extract, to that add 2 ml of concentrated sulphuric acid and boil. The white precipitate shows the presence of proteins.
- **Test for coumarin**
- Add few drops of NaOH to the 2 ml of extract .The appearance of yellow colour confirms the presence of coumarin .
- **Test for emodin**
- Take 2 ml of extract ,add few drops of ammonium hydroxide ,followed by the addition of few drops of benzene. The red colour precipitate indicates the presence of emodin.
- **Test for anthroquinone**
- Add few drops of benzene and few drops of ammonia solution .The formation of violet colour indicates the presence of anthroquinone.
- **Test for anthocyanin**
- Take 2 ml of extract ,then add few drops of HCl, and ammonia solution . The pinkish red colour confirms the

presence of anthocyanins.

- **Test for carbohydrate**
- To the extract of 2 ml add 2 ml of distilled water ,2 drops of ethanolic alpha napthol followed by 2 ml of concentrated sulphuric acid .The presence of carbohydrate is confirmed by the formation of reddish violet ring at the junction.
- **Test for leucoanthocyanin**
- Add few drops of isoamyl alcohol to the 2 ml of extract .Red colour indicates the presence of leucoanthocyanin.
- **Test for cardiacglycosides**
- Take 2 ml of extract ,to that add few drops of glacial acetic acid followed by ferric chloride and con.H_2SO_4.
- **Test for xanthoproteins**
- To the 2 ml of extract add 2-3 drops of ferric chloride .The blue colour indicates the presence of xanthoproteins .
- **Test for phenols**
- To 2 ml of extract add few drops of ammonia solution , the occurrence of reddish orange precipitate confirms the presence of phenols.

RESULT ;

QUALITATIVE ANALYSIS OF PHYTOCOMPOUNDS FROM THE EXTRACT

Table: 1Qualitative analysis of phytochemical compounds from the ethanolic extract of samples

Test No	Test for	Observation	Result
1	Terpenoid	Reddish brown	+++
2	Flavonoids	Yellow colour	++
3	Saponins	Formation of froth	+++
4	Tannin	Green precipitate	+++
5	Alkaloids	Yellow colour Precipitate	+++
6	Steroids	Reddish brown ring	+++
7	Glycosides	Violet into blue into Green colour	+++
8	Phlobatanins	Red precipitate	+
9	Proteins	White precipitate	+++
10	Coumarin	Yellow precipitate	+++
11	Emodin	Red colour	+++
12	Anthroquinone	Pink, Violet, Red Colour	+++
13	Anthocyanin	Pinkish red to bluishViolet colour	-
14	Carbohydrate	Reddish violet ring Formation	+++
15	Leucoanthocyanin	Organic layer into Red	+++

16	Cardiac glycosides	Formation of violet Browning	+++
17	Xanthoprotein	Blue black colour	+++
18	Phenols	Reddish orange Colour	+++

A – Absence, + - Trace, ++ - Moderate, +++ - Strong

Figure: 1Qualitative analysis of phytochemical compounds from the ethanolic extract of sample P.N

PLATE-14

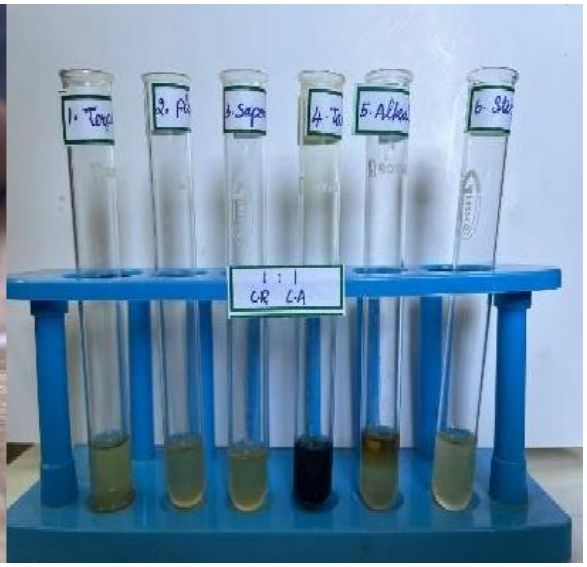


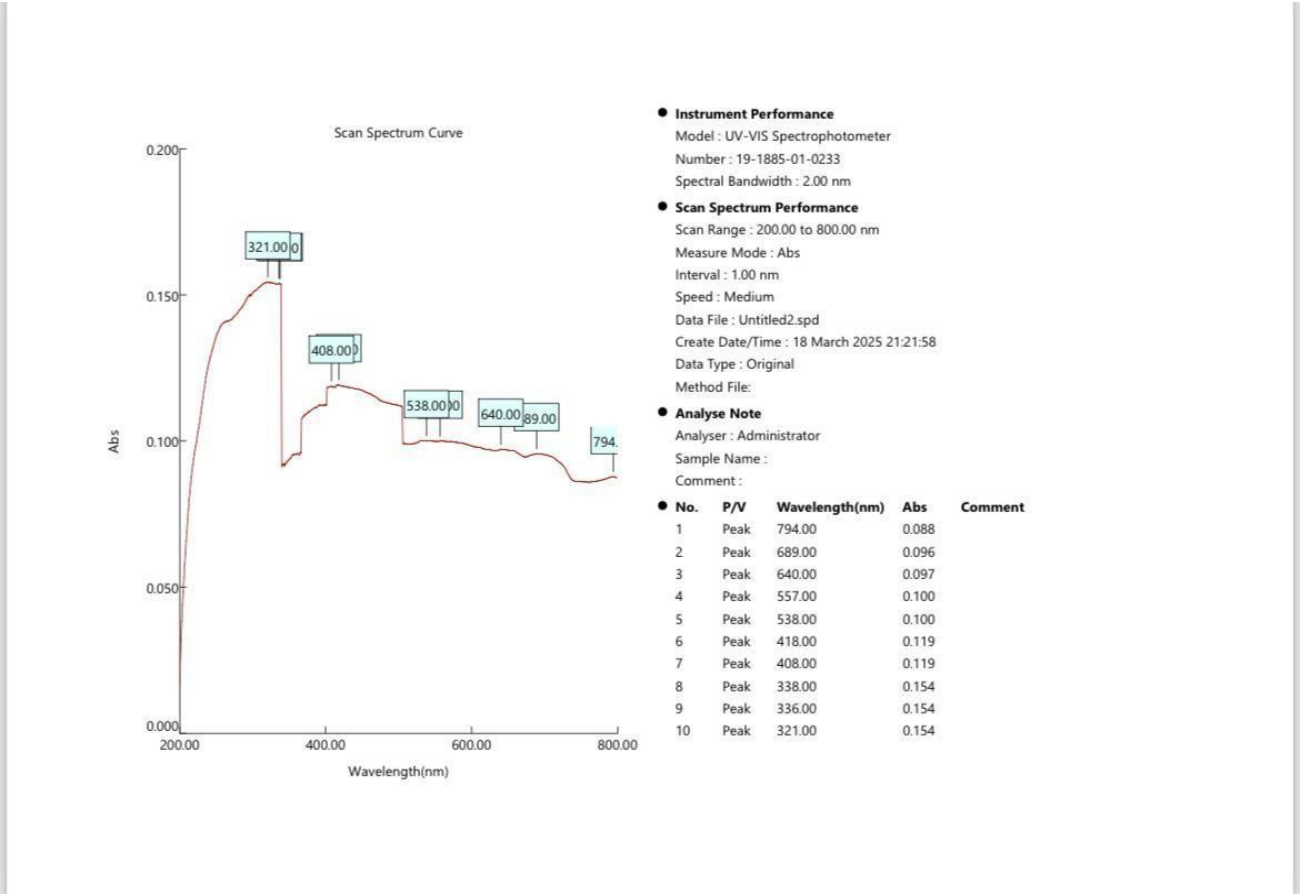
PLATE-15

PLATE-16

PLATE-17

Uv spectrum test;

PLATE-18 **PLATE-19**



- **Instrument Performance**
  Model : UV-VIS Spectrophotometer
  Number : 19-1885-01-0233
  Spectral Bandwidth : 2.00 nm
- **Scan Spectrum Performance**
  Scan Range : 200.00 to 800.00 nm
  Measure Mode : Abs
  Interval : 1.00 nm
  Speed : Medium
  Data File : Untitled2.spd
  Create Date/Time : 18 March 2025 21:21:58
  Data Type : Original
  Method File:
- **Analyse Note**
  Analyser : Administrator
  Sample Name :
  Comment :

No.	P/V	Wavelength(nm)	Abs	Comment
1	Peak	794.00	0.088	
2	Peak	689.00	0.096	
3	Peak	640.00	0.097	
4	Peak	557.00	0.100	
5	Peak	538.00	0.100	
6	Peak	418.00	0.119	
7	Peak	408.00	0.119	
8	Peak	338.00	0.154	
9	Peak	336.00	0.154	
10	Peak	321.00	0.154	

RESULT;

The sample have 75% of obserabsion in uv specturm test.

Antibacterial test;

- **Preparation of Aqueas extract**

- For the preparation of plant extract, the plant sample was collected. Leaves are cut into small pieces. The overall plant sample was washed with the help of running tap water around two to three times, using sun shadow places the samples were dried. The main thing is the leaves are kept out of direct sunlight. The leaves have been dried finely. Using the mortar the plant leaves are finely crushed. The powdered leaves were stored in a container. The container should be air- tight and the dried powder kept in dry place, cool and dark places. The preparation of ethanol extract, using 25g of powder in 100 ml of ethanol is added and it should be soaked for 24hours by hot percolation extraction method. After incubation, the extract was filtered through filter paper through the funnel. Then transfer the stock solution to a brown container and store at room temperature.

- **Specific Aim:**

- The purpose of this study was to examine the antibacterial activity of the fabric sample toward selected pathogens using disc diffusion method.

- **Collection of test organisms:**

- To examine the antibacterial activity of fabric sample, two strains [*Staphylococcus epidermidis* (MTCC 10623) and *Pseudomonas aeruginosa* (MTCC 1688)] were prepared as test organisms. All the strains were procured from the Microbial Type Culture and Collection (MTCC) at Chandigarh, India. Bacterial strains were cultivated at 37ºC and maintained on nutrient agar (Difco, USA) slant at for 4ºC.

- **Antibacterial activity of fabric sample (disc diffusion method)**

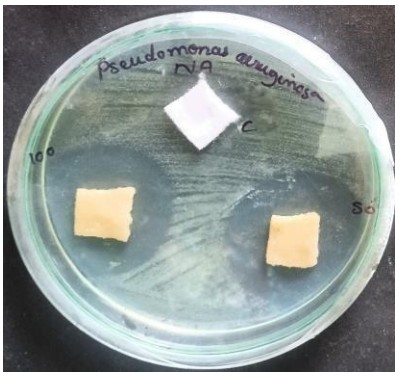
Antibacterial activity of fabric sample was determined using the disc diffusion method. The petridishes (diameter 60 mm) was prepared with Muller Hinton Agar and inoculated with test organisms. Sterile fabric sample cut into rectangular shape with 25*50 mm disc of six millimeter width were impregnated with 50 and 100 µl of sample respectively. Prepared discs were placed onto the top layer of the agar plates and left for 30 minute at room temperature for compound diffusion. The dishes were incubated for 24 h at 37ºC and the zone of inhibition was recorded in millimeters and the experiment was repeated twice.

- **Results:**

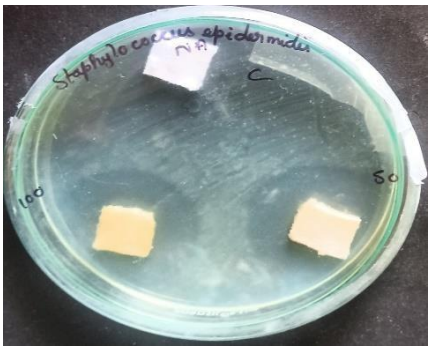
The antibacterial activity of fabric samples treated with extracts were analysis against pathogens are revealed in table 2. Figures 2 indicate that fabric cotton samples showed a maximum inhibition was observed against Pseudomonas aeruginosa (20 mm) at a concentration 100 µg/ml.

Table 2: Antibacterial activity of fabric sample.

Sample	**Concentration (µg/ml)**	**Organisms/Zone of inhibition (mm)**	
		Staphylococcus epidermidis	**Pseudomonas aeruginosa**
Control		0	0
Fabric sample coated with extracts	50 µl	15	18
	100 µl	17	20



Pseudomonas aeruginosa



Staphylococcus epidermidi PLATE-19

PLATE-20

- **Summary and Conclusion;**
- **Summary**

My project focuses on the "Ride Jacket with UV Protection," which entails a comprehensive study incorporating various tests and methodologies to assess the jacket's performance. The project includes the following components:
Methodology:

1. Literature Review: An examination of current research related to UV protection, aloe vera, Nithiyakalyani leaves, fleece fabric, antibacterial testing, qualitative analysis, UV spectrum testing, and textile materials.

Material Selection: Choosing materials that provide UV protection, specifically fleece.

Jacket Construction: The design and assembly of the jacket utilizing the chosen materials.

Tests;

1. Physical Assessments: Analysis of the jacket's physical characteristics, including tensile strength, tear resistance, and water repellency.
2. Antibacterial Evaluation: Examination of the jacket's effectiveness in preventing bacterial proliferation and minimizing infection risk.
3. UV Protection Assessment: Evaluation of the jacket's capacity to shield against harmful ultraviolet (UV) rays and safeguard the skin from damage.
4. Quality Assessment: Review of the jacket's overall quality, longevity, and comfort level.

Conclusion;

The outcomes of the physical assessments, antibacterial evaluations, UV spectrum analysis, and quality examinations indicate that the Ride Jacket, featuring UV protection and antibacterial properties, is a superior garment that provides outstanding defense against bacteria, UV rays, and deterioration. Its capacity to prevent bacterial proliferation, shield against UV radiation, and sustain quality and comfort over time renders it an excellent option for outdoor enthusiasts, athletes, and those who prioritize health and safety. In summary, this project highlights a thoughtfully designed and practical garment that fulfills the requirements of its target audience.