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# Selection of Herbs for Disposable Sanitary Napkin

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**ABSTRACT**: The paper focuses on developing an herbal sanitary napkin, with three layer construction by using selected herbs. The herbal sanitary napkins made of Cotton fibre, Mercerized Bamboo fibre used for this study. Sanitary napkins are made on some chemical based products. So, many suffer from allergies, urinary tract infection and feel itchiness. Skin diseases like rashes, cracked skin, painful skin with burning, redness and skin swelling, which caused by bacterial infection. Chemical will also induce certain microbial growth, so if herbal coating will prevent the bacterial infection. Research was conducted for 10 herbs and the best 4 herbs were selected using AATCC 147 testing method. The herbal extraction process was done by two methods such as methanol and aqueous extraction and treated on sanitary napkins. It is revealed from the results that herbal sanitary napkintreated with *Azadirachtaindica, Hibiscus Sabdariffa, Saracaasoca and Ocimumtenuiflorum*herbs were found good and used for Sanitary napkins.

KEYWORDS: AATCC 147, Bamboo fibre, Cotton fibre, Herbal and Sanitary Napkin

# I. INTRODUCTION

Cotton fibres are particularly suitable for manufacturing textiles for sports, non-implantable, medical products and health care hygienic products (1). Bamboo leaves and the soft, inner pith from the hard bamboo trunk are extracted using a steeping process and then mechanically crushed to extract the cellulose (2). While the Indian study found that "bamboo rayon showed excellent and durable antibacterial activities against both gram-positive and gram-negative bacteria", the Chinese study concluded "the bamboo pulp fabric just like cotton fabric has not possessed antimicrobial property" (3).

Traditional medicine worldwide is being re-evaluated by extensive experimental research on different plant species and their therapeutically active principles. The major merits of traditional or herbal medicine seem to be their perceived efficacy, low incidence of serious adverse effects and comparatively low cost (4).

The use of plants and plant products could be traced as far back as the beginning of human civilization. Medicinal plants are a source of great economic value all over the world. Nature has bestowed on us a very rich botanical wealth, a large number of diverse types of plants grow in different parts of the country (5).

The Indian Ayurvedic system of medicine is known as the richest, and the foremost among the other branches of medicinal knowledge that is available elsewhere on the globe(6). In this study an attempt has been made to product 100% eco-friendly sanitary napkin and the objectives of this study are to select natural fibre for the sanitary pad, to screen the herbsfor sanitary napkin and to select the best four herbs for sanitary napkin.

# **II. MATERIALS AND METHODS**

# MATERIALS

Selection of herbs

For this research pilot study was conducted by selecting 10 herbs. The selected herbs botanical names are mentioned as follows. Live and healthy herbal plant parts of RicinusCommunis (leaves), Azadirachtaindica(leaves),Saracaasoca(leaves),Euphorbia hirta leaf and flower),Leucasaspara(Leaves), ( Tribulusterrestris (Whole plant), Sennaauriculata(Leaves ), Passiflorafoetida( Stem, Leaf and flower) and Ocimumtenuiflorum (leaves), and Hibiscus sabdariffa (whole plant) were collected from different region in and around Coimbatore district which were authenticated by the Botanical survey of India. The plant parts were washed twice in freshwater to remove epiphytes and other extraneous matter from the plants.



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# The above selected 10 herbs were used for the finishing of sanitary napkin as shown in Table.1

S.	Scientific Name	Parts	Common	Common Name	
No		used	Name (English)	(Tamil)	Photographs
1.	RicinusCommunis	leaves	Castor oil plant	Amanakku	
2.	Azadirachtaindica	leaves	Neem	veppai	
3.	Saracaasoca	leaves	Sitaashok	Ashogam	
4.	Euphorbia hirta	leaf and flower	Asthma	Amman pacharisi	
5.	Leucasaspera	Leaves	Leucas	Thumbai	
6.	Tribulusterrestris	Whole plant	Land - caltrops	Nerunji Mull	
7.	Sennaauriculata	Leaves	Avaramsenn a	Avarai	



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8.	Passiflorafoetida	Stem, Leaf and flower	Stinking Passion flower	Mosukkattan	
9.	Ocimumtenuiflorum	leaves	Holy basil	Tulasi	
10.	Hibiscus sabdariffa	whole plant	Sorrel leaves	PulichaKeerai	

#### Selection of Herbs (Table.1)

#### **III. METHODS**

#### **Extraction process of herbs**

The separated herbal parts were shadow dried and powdered by using dry grinding machine. The herbal powders were stored in a dry container for further studies. The herbal products today symbolize safety in contrast to the synthetics that are regarded as unsafe to human and environment. Although herbs had been priced for their medicinal, flavourings and aromatic qualities for centuries, the parts of the plant used for medicinal purposes are leaves, root, stem, fruits, the complete aerial parts, the whole plant, barks (root and stem) and flowers. However, leaves were found most frequently used part. The above herbs were selected after thorough study from the related books.

The extraction process was done in three stages, such as drying, grinding and extraction. Two types of extraction method were followed such as methanol and aqueous extraction was done for all the selected twenty herbs and the following procedure was followed.

#### **Drying of herbs**

The collected plants were dried at the room temperature in the open air .It cannot be stored without drying to avoid breakdown of important compounds and also it will be contaminated by microorganisms. The dried herbs were kept in a dark room so that the breakdown of important components by sunlight will be prevented. After drying, those selected portions of the plant to be used and other parts of the plants were separated from dirt and other extraneous matter manually.

#### Grinding process

Dry Grinding of the selected herbal portion was done in grinder mixers. After that, the powder was sieved with seiver to remove the dirt and unkind particles. The fine powder obtained was used for extraction. The extraction was done by two methods such as methanol and aqueous extraction.

#### Methanol extraction

The following recipe was used for the Methanol extraction of selected 10 herbs individually.

- Recipe
  - Herbal powder 6grams



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- Methanol 80 ml
- Aqueous (distilled Water) 20 ml
- Temperature Room temperature
- Time for incubation 24 hours
- Filter paper Whatmann no.1 filter paper

Procedure for methanol extraction. The above selected recipe was used for extraction. Six grams of the herbal powder was mixed thoroughly with methanol and water and it was kept in airtight conical flask. The conical flask was incubated for 24 hours in the room temperature. The supernatant was filtered using a Whatmann no.1 filter paper and the filtrate was dried and the methanol was evaporated at room temperature. When exposed to the air. The filtrate was collected and kept in an air tight container for further study. The same method was used to collect filtrates of herbal powder of selected twenty herbal samples.

#### Aqueous Extraction

The following recipe was used for the aqueous extraction of selected 10 herbs.

- Recipe
  - Herbal powder 6grams
  - Aqueous (distilled water) 100 ml
  - Temperature Room temperature
  - Time for incubation- 24 hours
  - Filter paper Whatmann no.1 filter paper

#### Procedure for aqueous extraction

Six grams of dried herbal powder was mixed in 100ml of water slowly and mixed thoroughly in an air tight conical flask by shaking the flask for thorough mixing of herbal powder. The powder was allowed to dissolve in the water homogenously. Then the extract solution was filtered with Whatmann no.1 filter paper. The sediment/filtrate extract was allowed to dry in the room temperature. The filtrate/extract was collected and kept in an air tight container for further study. The same procedure was followed for selected twenty herbs.

## IV. RESULTS AND DISCUSSION

Analysis of three selected herbs The following table shows the scientific Name, Parts used, Common Name (English), Common Name (Tamil) and of the three selected herbs and was chosen for further study.

#### Selected best four herbs

The following Table.2 shows the scientific Name, Parts used, Common Name (English), Common Name (Tamil) and of the three selected herbs and was chosen for further study.

S. No	Scientific Name	Parts used	Common Name (English)	Common Name (Tamil)	Photographs
1.	Azadirachtaindica	leaves	Neem	veppai	
2.	Hibiscus sabdariffa	whole plant	Sorrel leaves	PulichaKeerai	



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3.	Saracaasoca	leaves	Sitaashok	Ashogam	
4.	Ocimumtenuiflorum	leaves	Holy basil	Tulasi	

#### Selected Best Four Herbs (Table.2)

The above table shows the best four herbs selected based on the zone of incubation, evaluated under AATCC 147 test method after it was conducted with 10 medicinal herbs and photographs of the plants as shown in table.2.

# **V. CONCLUSION**

In this study eco-friendly herbal coatedsanitary napkins are made to prevent from itchiness and skin diseases. To come out with the product with herbal finishes which will be eco-friendly and skin friendly. The product developed will have several advantages over the commercial available product. The product can be cost effective and affordable to the common women. This product will be unique and increasing the hygiene. The research will end up in commercialization of cost effective, Herbal coated sanitary napkins with value addition.

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