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Formulation and Evaluation of Herbal Floor Cleaner

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Abstract: ***Microorganisms, the friend and foe of human being are omnipresent in and around us. Innumerable pathogenic and nonpathogenic microorganisms remain present on the floor surface with which we are in direct physical contact. These organisms include Salmonella, Rhinovirus, Herpes, Trichophyton, Giardia, E. coli, Micrococcus species etc. Most of the microbes are nonpathogenic when present in less quantity, but as their concentration increases, they are able to cause various diseases like Stomach upsets, diarrhea, Cold, Cold sores etc. To restrict the growth of such microbes in the surroundings including floors, various commercially available floor cleaners such as Phenylsare used. Present study is an attempt to isolate and identify the floor micro flora from home and laboratory and to observe the efficacy of different floor cleaners. According to Indian Medical Association phenyl, identified as the most effective disinfectant against the floor micro flora, and therefore they are considered as standards to analyze effectiveness of other commercial surface cleaners. Our study suggested that can inhibit the growth of common floor micro flora as effectively.***

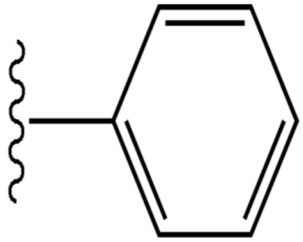
I. INTRODUCTION

Microorganisms are both a person's friend and enemy and are found both within and outside the body. The presence of moisture on the human body acts as the ideal environment for the growth of various organisms [1]. For an effective reduction in the potential infection induced by such organisms, sanitary conditions must be maintained. Personal hygiene is a state that encourages hygienic activities, whereas hygiene is described as a science concerned with the prevention of illness and preservation of health [2]. Routine hygiene procedures utilizing commercially available or medicated personal hygiene products are typically followed to control the growth of germs. Many bacteria are developing on the surface of our skin, and even after using soap or an antiseptic, these cannot be completely eliminated. The transmission of germs from the human body to the surfaces in the immediate environment occurs when a person physically contacts any of the surfaces. Due to the existence of uneven surfaces and gaps that can retain moisture, floors are among the most significant surfaces for the formation and growth of these bacteria. The majority of the organisms found in the common floor microflora are opportunistic and, in larger concentrations, can result in illnesses [3]. For instance, Staphylococcus aureus can cause minor skin infections like pimples, Serratia marcescens can cause catheter-associated bacteremia, urinary tract infections, and wound infections [4]. Typical sites of infection for Pseudomonas aeruginosa include the lungs, urinary system, burns, wounds, etc. Toxins can be produced by Aspergillus versicolor [5].Abeautifully constructed house needs proper care for clean, healthy and comfortableenvironment. The purpose of cleanliness includes removal of offensiveodor anddirt/contaminantsand to provide sparkling clean looks. Most household surfaces are "hard".and technically, household cleaning is "hard surfacecleaning [6]. Regular cleaning of floors, especially kitchen and bathroom is required because without regular cleaning lime scale builds up on tiles and taps, mold grows in wet areas, toilets smells and cobwebsaccumulate inthe homes[7].

II. LITERATURE OF SURVEY

1) Phenols were isolated in crude form for the first time at the end of the eighteenth century. In 1834, pure phenol was isolated, and its structure was established in 1842. In Germany, Küchenmeister was the first to utilise phenol as a wound dressing in 1860. Lister intended to employ it in his classic antiseptic surgical trials.[7]
2) In 1841, the French chemist Auguste Laurent isolated phenol as a benzene derivative in its purest form. Phène, the antecedent of the words "phenol" and "phenyl," was the name that Auguste Laurent gave to benzene in 1836.[8]
3) Because the first phenyl compounds were leftovers of producing and purifying different gases used for lighting, the word "phenyl" is taken from the French word "phényle," which itself is derived from the Greek word "v" (phaino), which means "shining." According to McMurry, "The word is derived from Greek pheno 'I bear light', commemorating the discovery of benzene by Michael Faraday in 1825 from the oily residue left by the illuminating gas used in London street lamps."[9]

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4) Friedlieb Ferdinand Runge isolated phenol (in impure form) from coal tar in 1834 and made the discovery. "Karbolsäure" (coal-oil-acid, carbolic acid) was Runge's term for phenol. Up until the emergence of the petrochemical industry, coal tar remained the principal source. In 1841, the French chemist Auguste Laurent isolated phenol as a benzene derivative in its purest form. The raschig technique and diazotization are the two ways to make phenol.[10]
5) Louis Pasteur, a Frenchman, demonstrated that bacteria can only evolve from other germs and not from inanimate objects in 1862. The chemist invented and pioneered the sterilisation, pasteurisation and disinfection processes. There are several industries that employ phenol. It is employed in medicine as a disinfectant, antiseptic, and slimicide as well as in the production of a variety of goods.[11]
6) On August 12th, 1865, Joseph Lister performed the first surgical procedure utilising the antiseptic chemical phenol. While working at the Glasgow Royal Infirmary, the British surgeon promoted sterile surgery and was a pioneer of antiseptic surgery.The extensive presence of phenolic compounds in plant meals (such as fruits, vegetables, cereals, olives, legumes, chocolate, etc.) and beverages (such as tea, coffee, beer, and wine) contributes to the overall organoleptic qualities of plant food.[12]
7) M. Capponi (1999) • Cited by 53 — Equilibrium of phenol ketonization in aqueous solution.Ivo Gut, Bruno Hellrung, Gaby Persy, and Jakob Wirz are among the authors in addition to Marco Capponi.[13]



Fig 1. Phenyl sample

III. AIM AND OBJECTIVE

A. Aim

The main aim is to prepare the phenyl formulation for humans to be available at an easy and cheap cost easy to use.It is employed as a disinfectant in a variety of settings, including offices, hospitals, hotels, stores, and home schools. In essence, a disinfectant is a substance that kills infectious organisms. A good deodorant with good keeping capabilities should also be a good disinfectant. Also, it would work well against the many different kinds of microbes that are employed to destroy germs and remove odors.

This amazing formula is a strong deodorant & germicide for disinfecting hospitals, nursing home, sick rooms, drains, toilets etc. It removes germs from all corners of your house making your home the cleanest. Say bye to germs with this phenyl. For general purpose use 1 part of phenyl with 50-100 parts water.

It is used as a significant raw material in quite a lot of chemical manufacturing. Phenol derivatives have been found to possess Antimicrobial, Analgesic, Anti-inflammatory, Antioxidant, Anti-convulsant, Anti-cancer, Anesthetic, Antiseptic and Disinfecticides, Antitubercular and Anti-Parkinson activity.[14]

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B. Objective

1) To beautify the floor.
2) To remove stains, dirt, litter and obstructions.
3) To remove allergens, in particular dust.
4) To prevent wear to surface.
5) The primary reason for the application of effective sanitizing procedure is to destroy those diseases organism's which may be present on equipment or utensils after cleaningand those prevent transfer of such organisms to the ultimate consumer. [15]

IV. MATERIAL AND METHODS

A. Material: Raw Material

The following are the raw materials generally use in manufacturing of phenyl

1) Distilled water
2) Neem Extract
3) Sodium laureate sulphate
4) Hydrogen peroxide
5) Sodium chloride
6) Fragrance
7) Coloring agent
8) Hydrochloric acid
9) Phenol
10) Preservative agent
a) aMethylparaben
b) Propylparaben

B. Requirement

1) Beaker 1000ml
2) Stirrer
3) Measuring cylinder
4) Weghing balance
5) Hand gloves
6) Empty bottle
7) Mask



Fig .2. Instrument

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C. *Formula*

S.R No	Component	Quantity
	Neem Extract	5 to 10 ml
	Sodium lauryl sulfate solution (20%)	200 ml
	Hydrogen peroxide	50 ml
	Hydrochloric acid	100 ml
	Sodium chloride (common Salt)	50 gm
	Fragrance	q.s
	Coloring agent	q.s
	Pure water	q.s

D. Methods

Sodium lauryl sulfate solution 200ml take into the empty beaker of 1000ml.



Add pure water upto 700ml.



Add the neem extract at 5ml to 10ml



Then add 50gm of hydrogen peroxide.



Add the hydrochloric acid 100 ml.



Add 50gm of sodium chloride & stir it.



Fragrance should be added in the beaker.



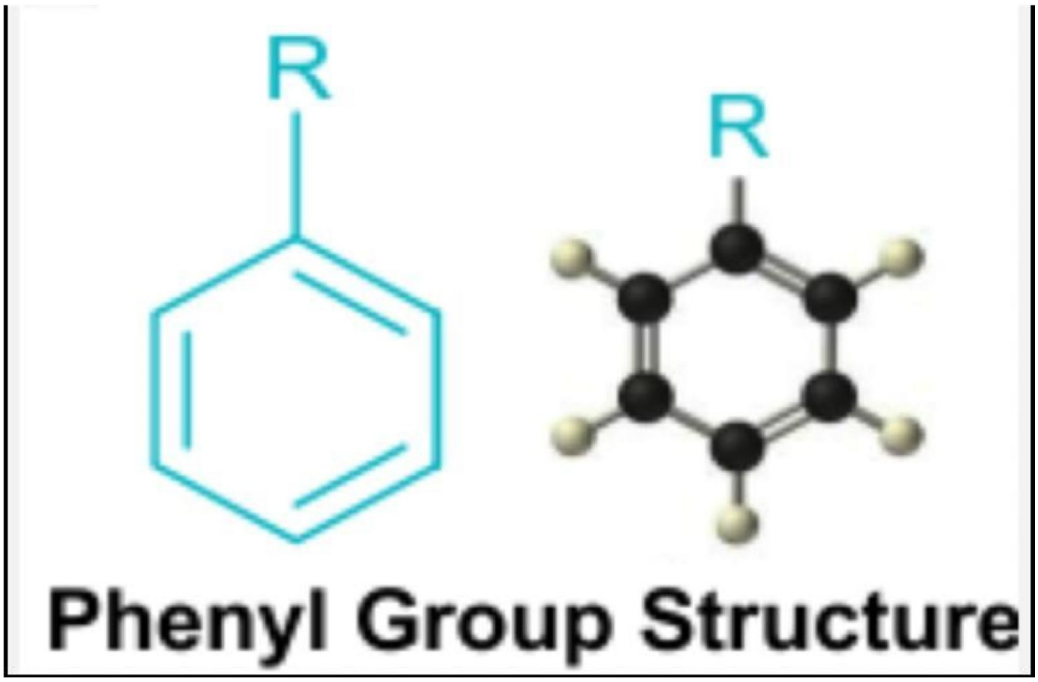
Add the coloring agent & mix it.
Transfer it into the plastic bottle container[16]



Fig.03. Formulation of Phenyl

V. EVALUATION STUDIES

The name of phenyl is taken from the French word phenyl which is derived fromthe French word phenyl which derived from the greek word phaino, which “light” because the earliest phenyl compounds were created as a result of the building and refining of various gasses used for lighting.



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A. Stability

This is to know if the product will remain effective during its life period.

B. pH

When chemicals are dissolved in water; the mixture's pH level can become either acidic or alkaline .PH indicates the concentration of acidity or alkalinity in the same way temperature tells how hot or cold something is alkaline solutions are better at cutting through dirt, grease, oils and other organic items. Acids are better for removing rust and other minerals.

pH value of surface cleaner shall be in the 5-7 Range This is considered to be neutral value since it will not adversely affect either the surface or the person who is using the cleaner.

C. Odour and Colour

1) *Odour:* The material shall be odourless or with a pleasant fragrance.
   All tested brands had acceptable odour and pleasant fragrance.
2) *Colour:* The material shall be colourless or with a suitable colour. The product, when applied for cleaning and subsequent wiping out with wet mop, should not leave any coloration or stain on the floor or any other surface. On dilution with water as recommended, the colour shall be faint to colourless.

D. Non-Volatile Matter

Determination of non-volatile matter or residue is an important qualitative test for products in which the presence of any residue may affect product quality and performance, or process efficiency. Non-volatile matter is the soluble, suspended, or particulate material remaining following evaporation of the volatile solvent that contains the material. For surface cleaners, this shall be a minimum four per cent as per Indian Standard.

VI. PACKING AND MARKING

Packing should be proper because it protects the product from deterioration and increases its shelf life. The material should be packed in glass bottles or suitable plastic containers, provided with a pilfer-proof cap made of either metal or plastic. The size of the container should be 200 ml, 500 ml or 1 liter. Each pack should feature the following details about the product: a) Indication of the source of manufacture

1) Net content of the material
2) Name of the material
3) Month and year of manufacture, and Batch No. and Code No.
4) Direction for use
5) Cautionary label stating 'do not mix with household soap & detergents' g) MRP
6) Customer-care details

A. Cleaning Properties

The material, when applied either neat or diluted with water by means of a clean lint-free cloth or a cotton mop, will clean as described in the Indian Standard



Fig.04 . Floor cleaning

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There are four major steps in the maintenance process:-

1) Cleansing
2) Scrubbing
3) Stripping
4) Buffing
5) Polishing
6) Burnishing

Understanding each step and the specific floor pads involved is querida to achieving the best appearance and extending the life of floor.[17]

VII. ADVANTAGES AND DISADVANTAGES

A. *Advantages*

1) This phenyl is used in removing insects from homes and is nontoxic, biodegradable, and environment-friendly.
2) They are unaffected by organic compounds.
3) It is used to remove odors and kill microorganisms.
4) It is used as a disinfectant in many places like home schools, hotels, stores, hospitals, offices, etc.
5) Cleanliness promotes mental clarity.
6) Regular handwashing can prevent the spread of infections.
7) A clean environment automatically boosts our self-confidence.
8) Cleanliness gives a fresh and good look to our surroundings.

B. *Disadvantages*

1) Contact can irritate and burn the skin and eyes.
2) Breathing Phenyl Acetonitrile can irritate the nose, throat and lungs causing coughing, wheezing and/or shortness of breath.
3) It is harmful for the skin to found red patches and produces the irritation.
4) Itis dangerous for the children.
5) High exposure to Phenyl Acetonitrile can cause headache, nausea, vomiting, weakness, and confusion.
6) Exposure to phenyl can cause pulmonary oedema, burns, and an itching sensation.

VIII. RESULT AND DISCUSSION

The unit proposes to manufacture Phenyl which is a fluid disinfectant that destroys pathogenic organism.Phenyl apart from its use in household, hotels, and restaurants kitchens bathrooms, and drain lines is used in considerable quantities by institutions such as hospitals, nursing homes, dispensaries and municipalities.

Evaluation Test	Observation
pH	5-7
Odour	Pleasant
Color	Blue/ Any color can be used
Non-volatile	Soluble

We prepared a floor cleaner and the phenyl had a normal pH range between 5 to 7 range. This pH range is required because this formulation is used for the floor, kitchen, toilet, regular cleaning of bathrooms etc. So that the normal range prepared phenyl provides good fragrance, kill the micro-organism/bacteria and protect from fungi. All the necessary evaluation tests were done the prepared formulation. The results were within limit. Hence, we can say that, the herbal floor cleaner was formulated and evaluated successfully and can be used for cleaning purpose. Also, it has a scope of large-scale manufacturing and marketing.

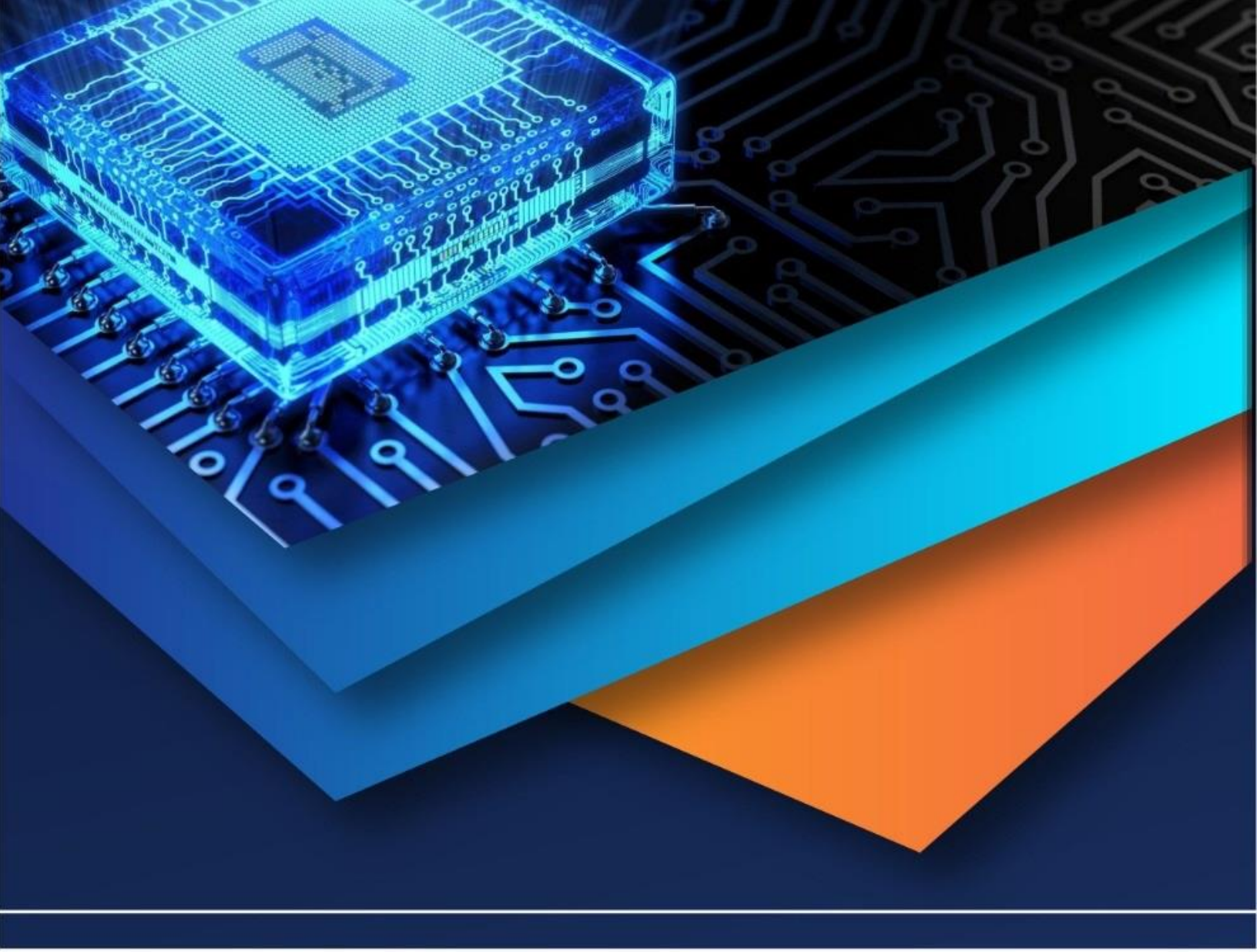
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IX. CONCLUSION

All disinfectants had more bactericidal efficacy than the cleaner for all sampling zones on the tested floor. Overall, performance of the floor machine is dependent upon the type of product used. Antiseptics are widely used in daily life to reduce, inactivate, or eliminate potentially pathogenic microorganisms. Phenyl are using chemicals to kill germs on surfaces. Phenyl does not necessarily clean dirty surfaces or remove germs, but by killing germs that remain on a surface after cleaning, disinfecting can further lower the risk of spreading infection.

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