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"Formulation And Evaluation of Herbal Gel''

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ABSTRACT
Skin is the largest organ of the body. It is a well-known fact that more than 1000 disease entities involving the skin have been described and up-to 20% of all patient referrals to general practitioners involve skin infections such as psoriasis, eczema, urticaria and skin cancer. The most common skin disease now days is psoriasis. Psoriasis is an autoimmune, non-contagious skin disorder characterized by sharply marginated scaly, erythematous plaques that develop in relatively symmetrical distribution. The prevalence of psoriasis in western populations is estimated to be around 2-3%. The prevalence of psoriasis among 7.5 million patients who were registered with a general practitioner in the United Kingdom was 1.5%. A survey conducted by the national psoriasis found a prevalence of 2.1% among adult Americans. The study found that 25%ofpeoplewithpsoriasis could be classified as having moderate to severe psoriasis.So, for the treatment of Psoriasis herbal gel by using the Neem leaves *(Azadirchta indica)* and Tulsi leaves *(Ocimum sanctum)*are formulate and evaluate.

Keywords: Herbal Gel,Psoriasis,Psoriatic arthritis,Plaque Psoriasis.

I. INTRODUCTION

Gel:

The word gel was coined by 19th-century Scottish chemist Thomas Graham by clipping from gelatine. gel is a semi-solid that can have properties ranging from soft and weak to hard and tough. Gels are defined as a substantially dilute cross-linked system, which exhibits no flow when in the steady state,although the liquid phase may still diffuse throughthissystem. Gels are mostly liquid by mass, yet they behave like solids because of a three-dimensional cross-linked network withinthe liquid. It isthecross-linkingwithinthe fluidthat givesagelitsstructure(hardness) and contributes to the adhesive stick (tack). In this way, gels are a dispersion of molecules of a liquid within a solid medium. The process of forming a gel is called gelation.

TypesofGels:
Theyareseparatedintothreecategories:

a) colloidalgel:
A colloidal gel consists of a percolated network of particles in a fluid medium, providing mechanicalproperties andelasticbehaviour. The particles can show attractive interactions through osmotic depletion or through polymeric links. Colloidal gels have three phases in their lifespan: gelation, aging and collapse. The gel is initially formed by the assembly ofparticles into a space-spanning network, leading to a phase arrest.

b) Hydrogel:
Hydrogels are highly absorbent (they can contain over 90% water) natural or synthetic polymeric networks. Hydrogels also possess a degree of flexibility very similar to natural tissue, due to their significant water content. As responsive "smart materials" hydrogels can encapsulate chemical systems which upon stimulation by external factors such as a change of pH may cause specific compounds such as glucose to be liberated to the environment, in most cases bya gel-sol transition to the liquid state. Chemo-mechanical polymers are mostly also hydrogels, which upon stimulation change their volume and can serve as actuators or sensors.

c) Xerogel:
A xerogel is a solid formed from a gel by drying with unhindered shrinkage. Xerogels usually retain high porosity (15-50%) and enormous surface area (150-900 m2/g), along with very small poresize(1-10nm).Whensolventremovaloccursundersupercritical conditions,thenetwork does not shrink and a highly porous, low-density material known as an aerogel is produced. Heat treatment of a xerogel at elevated temperature produces viscous sintering (shrinkage of thexerogel due to a small amount of viscous flow) which results in a denser and more robust solid, the density and porosity achieved depend on the sintering conditions.

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Advantages ofgel:

a. Gelsare Non-greasyforapplication.
b. Beingeasytoformulatewithactiveingredients.
c. Adheringwelltotheapplication site.
d. Beingwashableandnon-toxic.
e. ItshouldhaveStabilityovertime.
f. Abilitytotargetaffectedareaforrapidtreatmen tand relief.
g. Easyspreading.

Disadvantagesofgel:

a) Somedrugsaren'tabsorbed easilythroughtheskin.
b) Thereisapossibilityofanallergic reaction.
c) Theeffectofgels initiatesslower, butlastslonger.
d) Additivesinthe gelmayirritatethe skin.

The Skin:

Skin is the largest and primary protective organ in the human body, maintains a first- order physical barrier between the internal and external environments and acts as a barrier against outside pathogens and excessive loss of water or other nutrients. Generally, in direct contact with the outside environment, the skin plays a key role in immunologic surveillance, sensory perception, regulation of body temperature, and protection against trauma and UV radiation.

Anatomy of skin:

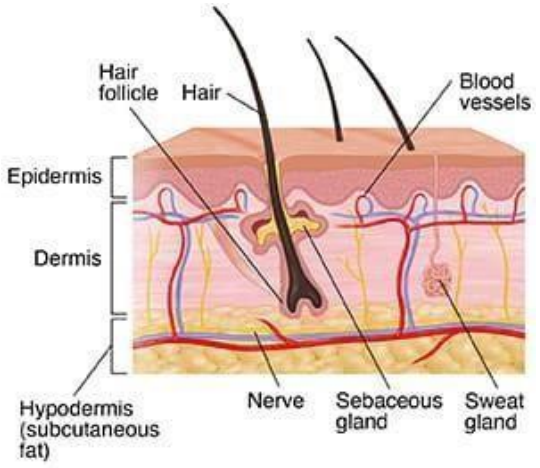

Fig.1: Anatomy of skin

Humanskinismainlydividedin to the three layers:

1. Epidermal Layer
2. Dermal Layer
3. Hypodermal Layer

1. Epidermal Layer:

Epidermal layer is the outermost layer of the skin act as physical and biological barrier to the external environment, prevents the loss of water and maintains internal homeostasis, preventing penetration by irritants and allergens.
Stratified squamous epithelium mainly composed of keratinocytes, produces the protein keratin and are the major building blocks of the epidermis.

They produce the pigment melanin, manufactured from tyrosine, which is an amino acid, packaged into cellular vesicles called melanosomes, and transported and delivered into the cytoplasm of the keratinocytes.

2. Dermal Layer:

Dermisisthe innerlayerliesbetweentheepidermisandthesubcutaneou sadiposetissues.
Dermis consists of about 15-20 % of total body.
Dermis composed of mast cells and fibroblasts, ground substances, blood vessels, lymphatics, sweat glands and nerves.

3. Hypodermal Layer:

Thislayercontainsubcutaneoustissueslyingbelowthede rmis.
It consistsofmainlyfatsandprovides insulationtothebodyfromthecold,aiding shock absorptionand provides mainstructuralsupport forthe

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skin. It composed of blood vessels and nerves.

Function of skin:

1. It acts as protective barrier and protects the body form harmful agents, mechanical, thermal and other physical injury.
2. Thermoregulation –Skin protect the body from cold or heat and maintain the constant temperature of body. Blood flow through the cutaneous vascular bed maintain body temperature. During warmperiod blood vessels dilate and skin becomes red and forms sweat, while In cold periods the blood vessels constrict and preventing heat from escaping.
3. Sensation-Skinacts asthesensoryorgan.
4. Skin involved in the synthesis of vitamin D and also contains receptors for the steroidal hormones like oestrogens, progestogens and glucocorticoids and for vitamin A.
5. Playsaroleinimmunologicalsurveillance.
6. Protect fromharmfuleffectsofUV radiation.
7. Preventexcessivelossofmoistureand protein.

Psoriasis:

Psoriasis is an autoimmune, non-contagious, dry, inflammatory and ugly skin disorder, which can involve entire system of person. It is mostly inherited and mainly characterized by sharply marginated scaly, erythematousplaques that develop in a relativelysymmetricaldistribution. The most commonlyaffected sites arethe scalp, tips of fingers and toes, palms, soles, umbilicus, gluteus, under the breasts and genitals, elbows, knees, shins and sacrum. This disease is chronic in nature with a tendencyto relapse. In this disease, the skin keeps scaling as flakes called psoriatic plaques due to rapidandexcessive multiplicationofepidermiscellswhichlooklike fishyskin &finally peels off as exfoliation.

Types of Psoriasis:

Therearedifferenttypesofpsoriasis,including:

i. Plaque psoriasis: This is the most common kind of psoriasis and it appears as raised, red patches of skin that are covered by silvery-white scales. The patches usually develop in a symmetrical pattern on the body and tend to appear on the scalp, trunk, and limbs, especially the elbows and knees.

Fig.2Plaquepsoriasis

ii. Guttate psoriasis: This type usually appears in children or young adults, and looks like small, red dots, typically on the torso or limbs. Outbreaks are often triggered by an upper respiratorytract infection, such as strep throat**.**

Fig.3Guttatepsoriasis

iii. Pustular psoriasis: In this type, pus-filled bumps called pustules surrounded by red skin appear. It usually affects the hands and feet, but there is a form that covers most of the body. Symptoms can be triggered by medications, infections, stress, or certain chemicals.

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Fig.4Pustularpsoriasis

iv. Inversepsoriasis: This formappearsassmooth, redpatches infoldsofskin, suchasbeneath the breasts or in the groin or armpits. Rubbing and sweating can make it worse.

Fig.5Inversepsoriasis

v. Erythrodermicpsoriasis(EP): Thisisarareb utsevere formofpsoriasischaracterized byred, scaly skin over most of the body. It can be triggered bya bad sunburn or taking
certain medications, suchas corticosteroids. Erythrodermic psoriasis oftendevelops inpeoplewho haveadifferent typeofpsoriasisthatisnot wellcontrolled,and it can be very serious.

Fig.6Erythrodermicpsoriasis

vi. Psoriatic arthritis: This is a chronic, progressive, inflammatory arthritis that affects as many as about 30% of patients with psoriasis.This arthritic symptoms are often associated with the development of skin lesions and includes pain, swelling and stiffness in the joints.

Fig.7Psoriaticarthritis

vii. Nailpsoriasis: This iscommonlyseenalongwithpsoriatic arthritis. Itappearsasapitting,smallbit nail, yellow brownnail,tendenrandpainfulnailwith chalk like debris build up under nail.

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Fig.8Nailpsoriasis

Causes of Psoriasis:

- Infections, suchasstrepthroatorskininfections.
- Weather,especiallycold,dryconditions.
- Injurytothe skin,suchasa cutorscrape,ora severe sunburn.
- Smokingandexposuretosecondhandsmoke.
- Heavyalcoholconsumption.
- Certainmedications—includinglithium, highbloodpressuredrugsandantimalarial drugs.
- Rapidwithdrawaloforalorinjectedcorticosteroids.
- Stress.

II. LITERATURESURVEY

1. AshwinB.Kuchekaretal.,(2011):
Psoriasis is a fundamentally an inflammatory skin condition with reactive abnormal epidermal differentiation and hyperproliferation affecting 2-3% of world's population.
Pathophysiology of disease includes mainly activation and migration of T cells to the dermis triggeringthe release of cytokinins (tumor necrosis factor-alpha TNF alpha) which leads to the inflammation and rapid production of skin cells.

2. SoniaPareeketal.,(2013):
The current review article focuses on Aloe vera chemical constituent and monographand therapeutic properties of Aloe vera.

3. JoseFranciscoIslasetal.,(2020):
Thiscurrentreviewarticlefocuseson monographofNeemandit'spotentialimpactsonhealth.

4. PadminiIriventietal.,(2021):
The current review article focuses on formulation and evaluation of herbal gel for treating psoriasis.

5. MahmoudG.ElBaassiriet al.,(2023):
Anacademic approachto skin care requires focus on ingredients thathave demonstrated clinical efficacy ,and gradual incorporation of products ,according to unique patient characteristics.
Approachesthat mayworkwellforone patient population maynot workwellfor another, andthe nuancesof treating the skin of people of colour cannot be underestimated.

III. HYPOTHESIS

The formulated herbal gel containing selected plant extracts with known anti-inflammatory,antioxidant and skin-soothing propertieswilldemonstrate significant efficacy inthe management of psoriasis symptoms,including scaling,erythemaand itching,with minimal side effects.
In the present study,it is hypothesized that the combination of Neem *(Azadirachta indica)* and Tulsi *(Ocimum sanctum*) extracts in a topical gel formulation will provide synergistic therapeutic benefits for the management of psoriasis.
Neem is known for its anti- inflammatory, antibacerial,antifungal and wound-healing activities,which can help in soothing inflammed skin and preventing infections.
Tulsipossesses strong antioxidant,immunomodulatoryand anti-inflammatoryproperties, which may help in regulating immune response and reducing the severity of psoriasis lesions.
The formulated herbal gel is expected to offer effective symptom relief through localized delivery of these bioactive compounds,improve the appearance and texture of the skin and enhance patient compliance due to its non-greasy, easy to apply nature.
Additionally, the gel is anticipated to exhibit acceptable physicochemical properties,including suitable pH, viscosity, spreadability and stability over time.

IV. RATIONALE

- India isahotcountrywithhighdensitypopulation,warm,humidweatherhelpsthe development of various skin diseases like psoriasis , eczema and leprosy.
- Thecauseofskindiseaseisaunhygienic condition.
- InIndia, theburdenofbothinfectiousdiseases(eg. scabies, fungalandviralskindiseases) and non-infectious skin

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diseases (eg. psoriasis, dermatitis and urticaria) has increased from 1990 -2017.

- Psoriasis is a chronic autoimmune skin disorder characterized by rapid skin cell proliferation, leadingto red,scalypatchesprimarilyontheelbows,knees,scalpan dtrunk. It is associated with inflammation, itching, dryness and discomfort.Current pharmacological treatments,including corticosteroids,immunosuppresants and phototherapycancauseadverseeffectsand oftenunsuitable for long-termuse.Therefore, thereisgrowing interest inalternativetreatmentsusing herbalformulationsthat aresafer and have fewer side effects.
- Traditionalmedicinehaslongusedherbsfortrea tingskinailmentsduetotheirnatural anti-inflammatory,antimicrobial,antioxidantandhealingpro perties. Byincorporatingthese herbal extracts into a gel base, it is possible to create atopical formulationthat can be applied directly to psoriatic lesionsto provide localized relief and therapeutic benefits.

V. AIM

"FormulationAndEvaluationOfHerbalGelForTheTrea tmentOfPsoriasis."

VI. OBJECTIVES

- Toformulatesafeandeffectiveherbalgel.
- Tocollect genuine materialsfromauthenticresources.
- Toextractherbalmaterials.
- Toformulateherbalformulationbyusingstand ardandappropriate methods.
- Toevaluateherbalgelbydifferentstandardeval uationparameters.

VII. STUDYDESIGN

1) Selection andAuthenticationofHerbalingredients.

Medicinal plants with reported anti-psoriatic,anti-inflammatory and skin-soothing properties were selected based on literature review. The selected herbs were authenticated by a qualified botanist.

2) **ExtractionofHerbalmaterials**.

The plant materials were shade- dried, powdered and subjected to solvent extraction (aqueous method) using Soxhlet extraction technique.The extract were concentrated and stored under appropriate conditions.

3) Phytochemicalscreening.

Preliminary phytochemical analysis was carried out to identify the presence of active constituents such as flavonoids, alkaloids, tannins saponins and terpenoids.

4) FormulationofHerbalgel.

The gel base was prepared using suitable gelling agents(e.g., Carbopol 934).Different formulations were developed by incorporating varying concentrations of the herbal extracts.Additionalexcipients like preservatives, humectantsand pH adjuster were used as needed.

5) EvaluationofFormulatedGel.

The formulatedgelwereevaluatedforthefollowingphysicoc hemicalparameters:

a) Appearanceandclarity
b) pH
c) Viscosity
d) Spreadability
e) Grittiness

MONOGRAPHSOFINGREDIENTS

1. Neem:

ScientificName:*Azadirachta indica*
CommonNames:Neem,IndianLilac,Nim,Margosa
Family: Meliaceae
Synonym:
Neem Nimtree. Margosa Tree **Morphology:**
PlantType:Evergreentree Height: 15–20 meters
Leaves: Pinnate, compound leaves with 9–15 leaflets, dark green in color. **Chemical constituents:**
Azadirachtin,Nimbin,Nimbolide,Nimbidin,salanine,T riterpenoids, flavonoids. **Uses:**

- exhibitsNeemsignificantantibacterial,antifun galandantiviralproperties.
- Thecompoundsinneemsuchas, NimbinandAzadirachtinreduceinflammation.

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2. Tulsi:
Scientificname:*Ocimumsanctum*
Commonnames: HolyBasil,Tulsi **Family:** Lamiaceae
Synonyms:
Holy Basil Sacred Basil Krishna Tulsi Sri Tulsi
Morphology:
Tulsiisasmall, aromatic, herbaceousplant,typicallygrowingtoaheightof30–60cm. It can be bushy or erect, with square stems.
Leaves: Theleavesaresimple,opposite,andovatetolanceolate,withacharacteristic pungent aroma. They are bright green or purple, depending on the variety.
Chemicalconstituents:
Eugenol,Ursolicacid,Orientin,chlorogenicacid,LeuteolinandRosmarinicacid. **Uses:**

- Tulsihasantimicrobial, anti-inflammatoryandantioxidantproperties.
- TulsihasbeenshowntolowerB.P,reducecholesteroland support hearthealth.

3. Menthaoil: OtherNames: Peppermintoil Japanese mint oil **Chemical Formula:**$C_{10}H_{20}O$ **Molecular Weight:**156.27gm/mol
Appearance: Colourlesstopaleyellow
Odour:strong,Characteristicmintyaroma
Solubility:insoluble inwater,soluble inalcoholandorganicsolvent
Melting Point :41-44ºC **BoilingPoint:**204-216ºC
Density: g/cm³ **pH:**slightlyacidictonearneutral
RefractiveIndex:1.459to1.467

4. Vitamin-E :
Alsoknownasalpha-tocopherol.
ChemicalFormula:$C_{19}H_{29}O_2$. **Molecular Weight:** 430.7g/mol.
Appearance: Paleyellow,viscousoil. **Odour:** Oily or greasy odour.
Density:Approximately0.95g/cm³.
Viscosity:Approximately150-200 cPat roomtemperature.
Solubility:Highlysolubleinfat,oils&organicsolventslikeethanol&acetonebut insoluble in water.
Meltingpoint: Approximately2-5℃. **Boiling Point:**330-350℃ **Refractive Index:** 1.5-1.6.

5. Triethanolamine:
Synonym:N,N-Bis(2-hydroxyethyl)ethanamine
Chemical Formula:$C_6H_{15}NO_3$.
MolecularWeight:149.19g/mol
Apperance: Cleartopaleyellow,viscousliquidorcrystallinesoliddependon temperature & form.
Odour: Ammonia-like or slightly fishy odour.
Solubility: Solubleinwater,alcohol,acetone&ether.
Melting Point:21℃
BoilingPoint:335℃ **Density:**1.125g/cm³

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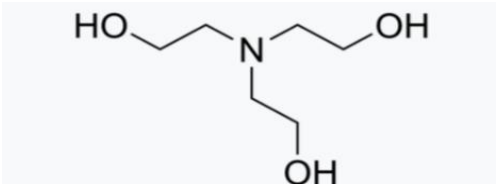
Viscosity: Viscousliquidatroomtemperature
pH: Alkaline(10-11) **RefractiveIndex:**1.472at20℃.



6. Lemonoil:
ScientificName:*Citruslimon***Co mmon Name:** Lemon **Family:** Rutaceae **Morphology:**
The lemontreeisasmallto medium-sizedevergreentreeorshrub. Ittypicallygrows to a height of3–6 meters (10–20 feet) but can be kept smaller in cultivation through pruning. Thestemiswoody, oftenwiththornybranches. Thebark issmoothandgreyish-brown, but it becomes rougher with age.
Chemicalconstituents:
Citral,Linalool,Pinene,Terpinolene,citronellal,Pectin, Ascorbicacid,flavonoids,citric acid.
Uses:

- Lemonoilactsasanaturalcleanser thathelpsinpurifying andcleansing skin.
- Lemonhelpstostrengthenimmunesystem,preventingandalleviatingcoldsand infections.
- Lemonoilisusedinskincareforitsastringentandantibacterialproperties.

7. Aloevera:
ScientificName: *Aloebarbadensis.*
CommonNames: Aloevera,TrueAloe, IndianAloe,BurnPlant,andLilyofthe Desert.
Family: Asphodelaceae **Morphology:**
Aloe vera isashort-stemmed, perennialherb, usuallygrowingto about60–100cmtall.
Leaves:Theplanthasthick, fleshy, lance-shapedleavesthatarearrangedinarosette. The leaves are green to grey-green in color, and the leaf margins are serrated with small white teeth.
Chemicalconstituents:
Aloin,Emodin,Aloemodin,glycoproteins,saponin,linoleicacidandOleicacid.
Uses:

- Aloeveragelisanaturalhumectantiswidelyusedtohydratedryskinandprevent dryness.
- Ithelpsto reducerednessandpromotehealing.
- Aloeveracontainingcompoundslikealoin,acts asanaturallaxative,helpstorelieve constipation.

8. Carbopol934:
Synonyms: Carbomer934,Polyacrylic acid
Molecularformula:$(C_3H_4O_2)_n$
Molecular weight :30,00,000 to 40,00,000g/mol
Appearance: White,fluffyandhygroscopicpowder
Melting point:250-270°C
Density:0.2g/cm^{3}to0.4g/cm^3

9. Purified Water:
ChemicalName: Dihydrogen monoxide
ChemicalFormula:H_2O
MolecularWeight:18.015g/mol

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Appearance:purewateriscolorless,odourless&tastelessliquidinit'smostcommon form.It freezes into solid ice &boils into steam(vapour).
Boiling Point:100c **Density:**0.9982g/cm^3 **pH:** 7 (Neutral)
Solubility: Awaterisauniversalsolvent,it meansitdissolvesawide varietyof substances,including gases,salts,acids&organic compounds.
Viscosity:1.002mPa.sat25℃
RefractiveIndex:1.333at25℃

FORMULA

Serial No.	Ingredients	Quantity
1)	NeemExtract(Nimolide)	3ml
2)	TulsiExtract(Eugenol)	3ml
3)	Menthaoil	0.3ml
4)	VitaminE	0.1gm
5)	Triethanolamine	0.5ml
6)	Lemonoil(Q.S)	0.2ml
7)	Aloe veragel	7ml
8)	Carbopol 934	0.5gm
9)	PurifiedWater	Q.S.to20gm

VIII. MATERIALSANDMETHODS

Extractionmethod: (SEM)
Toextracttheactiveconstituent from*Azadirchtaindica*and*Ocimumsanctum*inpowderform Soxhlet extraction method is used.
Materialsneeded:

- Neem
- Tulsi
- Aloevera **Solvent:**Water

Apparatus: Soxhlet Extractor.

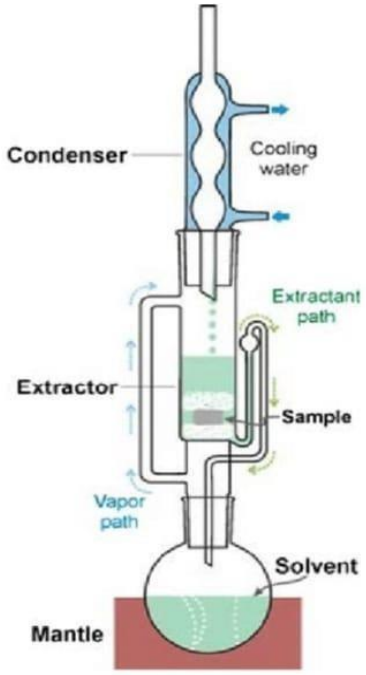

Fig.9: Soxhlet Extractor.

EXTRACTIONPROCEDUREOFNEEM

1. CollectionandPreparationofNeemMaterial:
Neemleavesdriedundertheshadetoavoidlosingactiveingredientsduetoheat.

2. Grinding:
Grindthedriedleavesintoacoarsepowderusingagrinderormortarandpestle.The finer the powder, the more efficient the extraction process.

3. SolventExtraction:
Placethegroundneemmaterialintoaglasscontainer. Addanappropriatesolvent (water)tothecontainer.Thesolvent should beenoughto completely immerse the neem powder.
Stirthe mixturewellandallow it tosit forseveralhours(typically24-48hours),shaking it occasionally to ensure proper solvent penetration. Duringthistime,theactivecompounds(suchas azadirachtin)dissolveintothesolvent.

4. Filtration:
Afterthesoakingperiod,filterthe mixturetoseparatetheneemsolids(whichcontain minimal active compounds) from the solvent, whichcontains the extracted neem compounds. Useafinemeshorcheeseclothtofilter outthesolidmatter.

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Fig10:Neemextraction

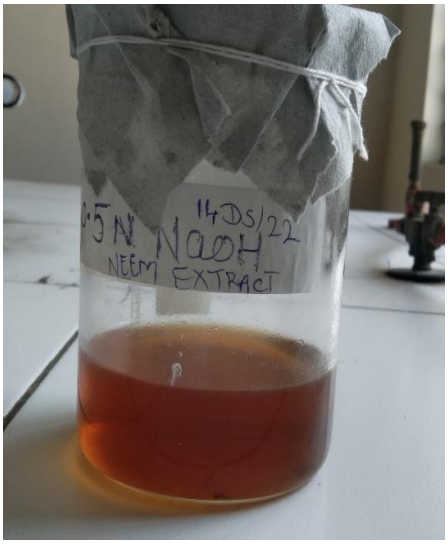

Fig11:Neemextract

EXTRACTIONPROCEDUREOFTULSI

1. **CollectionandPreparationofTulsiLeaves:** Beginbyharvesting freshTulsileaves,anddrythemintheshadeto avoid losing volatile compounds.
2. **Grinding:** GrindthedriedTulsileavesintoafinepowdertoincreaset hesurfacearea, improving the efficiency of the extraction process
3. **SolventExtraction:** Place the powdered Tulsi leaves inside the thimble. Add the selected solvent into the round-bottomflask.Heat the round- bottomflask using a heating mantle orwater bath. The solvent will begin to vaporize and pass through the extractor chamber.As the solvent passes through the Tulsi leaves, it dissolves the bioactive compounds. The extraction process can run for several hours (typically 4-6 hours), allowing for completeextraction of the desired compounds.
4. **SeparationofExtract:** Aftertheextractionprocessisfinished,turnoffthe heat andallowtheapparatusto cool.The extract can be separated from the plant material.

Fig13:Tulsiextract

Fig12.Tulsiextraction

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METHODOFPREPARATIONOFHEARBALGEL

1. **Preparation ofCarbopolgelbase:**
   - DisperseCarbopol934 (0.5-1%w/w)inpurified waterwithconstantstirring.
   - Allowtohydrateandswell for2-3 hours.
   - Stirgentlytoavoidairentrapment.
2. **IncorporationofHerbalExtract:**
   - Mixneemextract,tulsiextractand aloeveragelinaseparatecontainer.
   - Addthisherbal blend slowlyinto thehydrated Carbopolbasewithcontinuous stirring.
3. **Addition ofoilsandvitamin:**
   - Addmenthaoil,lemonoilandvitaminEdropwise whilestirring.
4. **pHadjustment:**
   - Adjust the pHofgelto around 5.5-6.5 using triethanolamine(dropwise), which also helps in neutralizing Carbopol and forming the gel.
5. **FinalmixingandPackaging:**
   - Stirthe geluntiluniformconsistencyis achieved.
   - Transferintosterilized,opaquecontainer.

EVALUATIONPARAMETERS

1. **Organoleptic properties: Colour:**

Thecolourofherbalgel,whichshouldbeconsistent andappropriate forthe formulation.

Odour:

Theherbalgelshould haveacharacteristicbutnotunpleasant odourfromneemand tulsiextract.

Appearance:

Theherbal gelshouldhaveasmooth,uniform textureand befreefromlumpsorvisible contaminants.

Consistency:

The herbalgelshouldbe smooth,nongreasyandeasytoapply.

2. **pH:**

Theherbalgelshouldbeslightlyacidictomatchthe skin'snaturalpH (around5.5- 6.5).

Fig.14:pHMeter

3. **Viscosity:**

Theherbalgelshouldhaveanoptimalviscositytoensuree asyapplication without being too runny or too thick.

Fig.15:Brookfield Viscometer

4. **Spreadability:**

Theherbalgelshouldspreadevenlyandsmoothlyonthes kinwithoutleavinga greasy or sticky residue.

Spreadabilitycanbecalculatedbythefollowingformula:

S=m×l/t

Where ,

S=Spreadability. m=Wt.tied toupperslide.

l=Lengthoftheglassslide. t= Time taken in sec.

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Fig.16:Spreadability Apparatus

5. Grittiness:

Grittinesstypicallydescribesatextureorfeelingthat includessmall, hardparticleslikesand or grit often creating a rough or abrasive sensation.

Fig.17:Microscope

Fig.18:EvaluationofGrittiness

IX. RESULT

Batch F1

Batch F2

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Sr.No	EvaluationParameter	F1	F2
1	Colour	Brownish	Brownish
2	Odour	Characteristic	Characteristic
3	Appearance	Smooth	Smooth
4	Consistensy	Uniform	Uniform
5	pH	5.74	5.72
6	Viscosity	3.8	4.2
7	Spreadability	5.07	4.36
8	Grittiness	Clear	Clear

X. DISCUSSION

Thepreparation ofHerbalgelforthetreatmentofPsoriasis will be a well balanced formulationwhichcombineseffectiveherbalcomponent swithappropriateexcipientsfor stability,safetyandpatientcompliance.
Byutilizing natural agents such as Neem leaf, Tulsi leaf, Aloe vera gel, Lemon oil and Menthaoilthis formulationwilloffersapromisingalternativetothesynt heticdrugs isspecially considering in the side effects profile of chemical treatment.
Theherbalgelwillbeapracticalandefficient optionfor managing mildto moderate Psoriasis and willplays a significant role in supporting immune function and accelerating recovery.
Thepreparedformulationwillbeasafe, effective herbalgelbyusingthe ingredients mentionedinthespecifiedformulaandevaluateitbyusing specifiedevaluationparameters.

XI. CONCLUSION

Thepresent study conclude that formulated and evaluated a herbal gel containing *Azadirachta indica* (Neem) and *Ocimumsanctum* (Tulsi) extractsfor potentialuse inthetreatmentofpsoriasis.

The gel exhibited desirable physical characteristics such as suitable pH, good spreadability, consistency and stability under various storage conditions.
Phytochemical analysis confirmed the presence of active constituents known for anti-inflammatory, antimicrobial and antioxidant properties, which are beneficial in managingpsoriatic symptoms.

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