

FORMULATION AND EVALUTION OF ANTI-BACTERIAL SOAP BY BOUGAINVILLEA FLOWERS

Dr. Konathala Rajesh, Principal, Bhaskara Institute of Pharmacy Komatipalli(V), Bobbili, Vizianagaram, Andhra Pradesh, India.

Mrs. Vangapandu Prasanna, Assistant professor, Bhaskara Institute of Pharmacy, Komatipalli(V), Bobbili, Vizianagaram, Andhra Pradesh, India.

E. Mail: prasannaecedubilli369@gmail.com

Mrs. Reddy Divya, Assistant professor, Bhaskara Institute of Pharmacy, Komatipalli(V), Bobbili, Vizianagaram, Andhra Pradesh, India.

E. Mail: divya.reddy49@gmail.com

Mrs. Baggu Syamala, Student, Bhaskara Institute of Pharmacy, Komatipalli(V), Bobbili, Vizianagaram, Andhra Pradesh, India.

E. Mail: svamalabaggu@gmail.com

Ms. Chandanapalli Mounika, Student, Bhaskara Institute of Pharmacy, Komatipalli(V), Bobbili, Vizianagaram, Andhra Pradesh, India.

E. Mail: chandanapallimouni@gmail.com

Ms. Baliyarusimhuni Likhita, Student, Bhaskara Institute of Pharmacy, Komatipalli(V), Bobbili, Vizianagaram, Andhra Pradesh, India.

E. Mail: karthikasaib680@gmail.com

Mr. Denkada Devid, Student, Bhaskara Institute of Pharmacy, Komatipalli(V), Bobbili, Vizianagaram, Andhra Pradesh, India.

E. Mail: deviddenkada944@gmail.com

ABSTRACT:

The present study was designed to explore the anti-bacterial activity of different extracts of the flowers of the bougainvillea glabra using water as the solvent. Various physicochemical tests are been done to observe the anti-bacterial activity of the extract prepared. Additives are used such as aloe vera which helps to promote the smoothing of the skin. The shikaki is used to observe the foaming effect which helps to clean the surface. The glycerine soap base is used to moisturizing effect on the skin. The rosemary essential oil is used for flavouring and which helps in the skin toning.

Key words: Bougainvillea, herbal soap, anti-bacterial activity

INTRODUCTION

Herbal soaps are skin-purifying and skin-beautifying products. The primary benefit of utilizing herbal cosmetics is their purity, which leaves the body rich in nutrients and other beneficial minerals instead of causing any negative side effects. Summer time dehydration from prolonged heat contact to the skin results in wrinkles, freckles, blemishes, pigmentation and sunburns. Herbal soaps are 100 percent organic and offer plant extracts

which contain important oils. Nourishing Herbal soaps contain the natural goodness of nature, and this makes them nourishing for your skin. It offers comfort, healing and stress relief as well. Therapeutic Because of properties such as relief from tension and the healing power of herbal soaps, the benefits are there in plenty for those seeking to rejuvenate the mind, body, and spirit. Aromatic Herbal soaps have an aroma which makes them extra special. It has a selection of exclusive elements and

is devoid of artificial color and fragrance. Moreover, chemical soaps have animal fat and lack the essential oils from plant extract which give a natural and pleasing aroma. Relief from Skin Diseases Handmade herbal soaps have therapeutic benefits in addition.

LITERATURE SURVEY

Charushila N. Hajare, Farida R. inamdar, Resh ma V. Patil, Chi danand S. Shete, suryakant S. wadkar. Kumar S. Patil, jai S. Ghosh. antibacterial activity of the leaves of bougainvillea spectabilis against e.coli 2832 and m. aureus ncim 5021: The significance of photochemical in chemotherapy is well known. However, most of these are used for systemic applications there is an equally important need to search affordable source of such photochemical which can be used topically as disinfectants primarily as first aid dressing, prior to being treated by registered medical practitioners. This study aims to find one such disinfectant from the leaf extract of a very common plant like bougainvillea spectabilis which can be used as ethanolic extract (tincture). It has been observed to retard the growth of common negative organism like Ecoli and a gram positive organism by M.aureus, giving enough time for the patients to be shifted for treatment by appropriate medicines.

AshleshaGhanwat, Sachin Wayzod and Vanjire Divya:

formulation and evaluation of herbal soap A herbal soap and sanitizer was formulated using the leaf and bark extract of Azadirachta indica, Ocimum tenuiflorum, Sapindus mukorossi and Acacia concinna powder. Ayurvedic cosmetics are also known as the herbal cosmetics the natural content in the herbs does not have any side effects on the human body (5) most herbal supplement are based on several botanical ingredients with long histories of traditional or folk medicine usage. Among the numerous botanical ingredients available in the market today.

MATERIALS

BOUGAINVILLEA GLABRA

Family: nyctaginaceae

Genus: *bougainvillea*

The genus Bougainvillea is a native to South America and derived its name from Louis Antoine de Bougainville (1729–1811), an admiral in the

French Navy who encountered the plant in Brazil, in 1768. It loves open sunshine and the colors of some varieties grow brighter and more attractive in hot dry climate. The genus Bougainvillea in the Nyctaginaceae (4 O' clock) family of plants has 18 species, with three that are horticulturally important (in ornamental sense) *Bougainvillea spectabilis*, *Bougainvillea glabra*, and *Bougainvillea peruviana*¹⁰.

Source: Brazil, Bolivia, Paraguay, peru, argentina, india

GLYCERINE SOAP BASE

Glycerine soap it nourish and hydrate the skin, giving it a healthy youthful appearance. Being humectant, glycerine can attract moisture to it self. A glycerine soap draws moisture to your face and body and traps the water molecules.

Uses

1. Soap making
2. Cosmetic applications
3. Pharmaceutical applications

SHIKAKAI

Botanical Name : Acacia concinna (Willd.)

Family : Mimosaceae

Shikakai powder is a popular Ayurvedic ingredient derived from the dried fruit pods of the Acacia concinna tree. Here's some information and uses of Shikakai powder

Chemical constituents

1. It principally consists of arabin, which is a complex mixture of calcium, magnesium and potassium salts of Arabic acid.
2. Arabic acid upon hydrolysis give L-arabinose, L-rhamnose, D-galactose and D-glucuronic acid.
3. It also contains oxidase and peroxidase enzyme.

ALOE VERA

Genus- Aloe

Species- Barbadensis Mill [4]

Botanical name: Aloe barbadensis miller

Family: Asphodelaceae (Liliaceae)

Biological source: Aloe is the dried juice collected by incision, from the bases of the leaves of various species of Aloe.

Active components with its properties: Aloe vera contains 75 potentially active constituents: vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids and amin acids.

Skin Benefits

1. Soothes sunburns: Aloe vera's anti-inflammatory properties help calm sunburned skin.
2. Hydrates skin: Rich in vitamins A, C, and E, aloe vera moisturizes and nourishes the skin.

ROSEMARY ESSENTIAL OIL

Rosemary essential oil is a popular choice for soap making due to its numerous benefits for the skin and its invigorating scent. Here's some information and uses of rosemary oil for soap:

Benefits for Skin

1. Improves circulation: Rosemary oil helps increase blood flow, which can aid in reducing inflammation and promoting healthy skin.
2. Antioxidant properties: Rosemary oil's antioxidant properties help protect the skin from damage caused by free radicals.

PREPARATION OF POWDER

EXTRACT

- ❖ Collection of bougainvillea flowers from near by plants.
- ❖ Now place the flowers at clean and dry place.
- ❖ Let the flowers dry for 10 days in shadow drying.
- ❖ After 10 days check the flowers whether they have dried or not.
- ❖ After knowing the flowers has dried, keep the dried flowers in the motor and pestel and triturate it well until a powder is obtained.
- ❖ Sieve the triturated powder in the sieve no:28 up to the powder obtained in a uniform manner.

- ❖ Now store the powder in neat and dry plastic container
- ❖ Weigh 5grams of powder for extraction process.
- ❖ Dissolve the 5grams of powder in 50 ml of distilled water until it gets disolved allow it for soxhlation process.
- ❖ The soxhalation is kept for 1hr.
- ❖ After the soxhalation process was completed the extracted material is filtered by using whattman's filter paper.

PHYTOCHEMICAL TESTS

Test for alkaloids

TEST	OBSERVATION	INFERENC E
dragendrao ff 's test: Mix 1ml of sample and 2ml of reagent .	Reddish brown colour ppt	Presence of alkaloids
Hager's test: 2ml of sample and 2ml of reagent.	Dark yellow colour ppt	Presence of alkaloids
Wagner's test: 2ml of sample and 2ml of reagent.	Reddish brown colour ppt	Presence of alkaloids

Test For Proteins

TEST	OBSERVATION	INFERENCE
Biuret test: 1ml of test solution + 2ml of millions reagent	Violet colour was observed	Presence of proteins
Lead acetate test: 2ml of sample solution add 2ml of NAOH and 0.5ml lead acetate, boil	Black to brown colour was observed	Presence of proteins
Ferric chloride test: 2ml of sample solution add few drops of ferric chloride	Dark brown colour was observed	Presence of proteins

Test For Flavanoids

TEST	OBSERVATION	INFERENCE
Alkali test: 1ml of test solution treated with NAOH	Yellow colourization was observed	Presence of Flavanoids
Modified shinoda test: 2ml of sample solution add magnesium powder few drops of H ₂ SO ₄	Deep red colour was observed	Presence of Flavanoids
Shinoda test: 2ml of sample solution add zink powder few drops of H ₂ SO ₄	Dark brown colour was observed	Presence of Flavanoids

Test For Carbohydrates

TEST	OBSERVATION		INFERENCE
Iodine test: 1ml of test solution 0.5ml of iodine	Blue to Green colourization was observed		Presence of carbohydrates
Fehlings test: 2ml of sample solution and mix Fehling A&B, boil	Dark yellow to red colour was observed		Presence of carbohydrates
Barfoeds test: 2ml of sample solution add 2ml of Barfoeds reagent, boil	Brick red colour was observed		Presence of carbohydrates

DISCUSSION

Bougainvillea has been reported to have protective against micro organisms and improve skin. Alo vera act as anti bacterial, Shikakai also has antifungal properties, glycerine soap base is commonly used to create handmade soap bars, glycerine is used in various cosmetic products, such as creams, lotions, :

Rosemary oil can help tone and balance the skin, reducing the appearance of pores. Rosemary oil's antimicrobial properties can help combat acne and prevent future breakouts. The herbal soap formulation is prepared from bougainvillea glabra, alovera, shikakai, and small amounts of synthetic ingredients.

The formulation of herbal soap shows anti bacterial activity.

REFERENCES

1. Ashleshaghanwat, Sachin wayzod and vanjireDivya, formulation and evalution of herbal soap,2(2) 2020, 21-26.
2. Dr.A.Seethadevi, D.V.Sivani, D.sivani,D.Anusha,G.Sarath,SyedMeraj sultana, Formulation and evalution of anti-microbial herbal soap, Recevid: 08-10-2021,Revised: 26-11-20212, Accepted 05-12-2021,Published on 20-12-2021.
3. Ahmed, LatifHazarika MU, Sarma D. Formulation and evaluation of an ayurvedic bath soap containing extracts of three ayurvedic herbs. Journal of Medicinal Plants.2021;9(2):115-117.
4. Charushila n. hajare, farida R. inamdar , Reshma V. patil, Chi danand S. shete, Suryakant S. wadkarkumar, S. Patill,jai S. ghosh, anti-bacterial activity the leaves of bougainvillea speetabilisagainste E-coil 2382 and m. aureusneim 5021, Accepted on: 21-07-2015; Finalized on: 31-08-2015.
5. Chariandy CM, Seaforth CE, Phelps RH, Screening of medicinal plants from Trinidad and Tobago for antimicrobial and insecticidal properties, Journal of Ethnopharmacology, 64, 1999, 265-270.

6. Devi, Seetha A, et al. Formulation and Evaluation of Antimicrobial Herbal Soap. *Int. J Pharm. Sci. Rev. Res.* 2021;71(2):122-125.
7. Gupta V, George M, Joseph L, Singhal M, Singh HP, Evaluation of antibacterial activity of *Bougainvillea glabra* 'snow white' and *Bougainvillea glabra* 'choicy', *Journal of chemical and pharmaceutical research*.
8. Joshi DD, Mujumdar AM, Narayanan CR, Anti-inflammatory activity of *Bougainvillea spectabilis* leaves, *Indian Journal of Pharmaceutical Sciences*, 46, 1984, 187-188. Mariajancynani J, Chandramohan G, Fathima Beevi M, Elayaraja A, Preliminary phytochemical investigation and antioxidant activity of *Bougainvillea glabra* 'choicy' leaves, *Sch. Acad. J. Biosci.*, 1, 2013, 72-75.
9. Kumar K. Sudheer, et al. formulate and evaluate the herbal bath soap using extracts of three plants having ethnic and dermatological importance in ayurveda, namely *Azadirachta indica*, *curcuma longa*, *Ocimum tenuiflorum*. *Neuroquantology*. 2022;20(12):1055.
10. Madhusudan KN, Vinayarani G, Deepak SA, Niranjana SR, Prakash HS, Singh GP, Sinha AK, Prasad BC, Antiviral activity of plant extracts and other inducers against Tobamovirus infection in Bell pepper and Tomato plants, *International journal of plant pathology*, 2011, 35-42.
11. Mishra N, Joshi S, Tandon VL, Munjal A, Evaluation antifertility potential of aqueous extract of *Bougainvillea spectabilis* leaves in swiss albino mice, *International Journal of Pharmaceutical Science and Drug Research*, 1, 2009, 19-23.
12. Narayanan CR, Joshi DD, Mujumdar AM, Dhekne VV, Pinitol- a new antidiabetic compound from the leaves of *Bougainvillea spectabilis*, *Current Science*, 56, 1987, 139-141.
13. Prachibhimti, preranasahu, shashankyadav, shwetaturparaj, nemendrasahu, harishsharma, gyaneshkumarsahu, Formulation of polyherbal soap and its physico-chemical evaluation, DOI: 10.31080/ASPS.2023.07.0947.
14. Rafiq, Shahina SJ. Formulation of herbal soap against acne causing bacteria. *Asian J Biol Life Sci.* 2021;10(3):609.
15. Sanchitamandal, Bhattacharya Rupa, BhoirDhanshree and PalseRuchika, formulation and evaluation of anti-bacterial polyherbal soap Received on 26-Aug-2021, Accepted on 6-sep-2021.
16. Struwig M, Siebert S, An introduction to the four-O' clocks of southern Africa, *Plant Life*, 39 & 40, 2010, 66-70.
17. Saikia H, Das S. Antidiabetic action of *Bougainvillea spectabilis* (leaves) in normal and alloxan induced diabetic albino rats, *Indian Drugs*, 46, 2009, 391-397.
18. Shah, Rutuja R, Rohan R, Vakhariya. Formulation and Evaluation of Antifungal Soap of Garlic oil. *Asian Journal of Pharmaceutical Research* 2020;10(1):1316. DOI 10.47583/ijpsrr. 2021.v7i1i02.019