

Antibacterial Activity of Leaves Extracts of Ratanjyot

Badhekar Akanksha S¹, Shinde Pallavi M², Inamdar Saniya N³,
Gholap Chirag S⁴, Dathkile Sachin V⁵

Students, Samarth Institute of Pharmacy, Belhe, Maharashtra, India^{1,3,4}
Department of Pharmaceutics, Samarth Institute of Pharmacy, Belhe, Maharashtra, India^{2,5}
akankshabadhekar2001@gmail.com

Abstract: *The present research was conducted to discover antimicrobial compounds in methanolic leaf extracts of Ratanjyot (Jatropha curcas) is a drought-resistant perennial tree attracting attention as biodiesel plant in the recent times, particularly because of its potential for growth in the regions of low rainfall. Present communication encompasses different aspects of Ratanjyot plantation and its uses including in soil conservation under stressful conditions. The paper also includes the reports about phytochemical constituents of Ratanjyot and also refers to less discussed aspects, i.e., possible allelopathic effects. Ratanjyot (Jatropha curcas) is a multiple purpose plant with potential for biodiesel production and medicinal uses. It has been used for treatment of a wide spectrum of ailments related to skin, cancer, digestive, respiratory and infectious diseases.*

Keywords: Ratanjyot, Antimicrobial, Jatropha curcas

I. INTRODUCTION



Ratanjyot may be atiny low tree or shrub belonging to family: Euphorbiaceae. it's many Synonym Curcaspurgans Medic. J. curcas Linn. from the Euphorbiaceae family has been employed in many parts of the world for various medicinal purposes [1]. . Microbial infections are major public health problems within the developed countries. thanks to general use of economic antibiotics, the relative frequency of multiple antibiotic resistances in human pathogens isn't only large but also growing. the globe Health Organization estimated that about 80% of individuals still rely mainly on traditional remedies like herbs for his or her medicines [2]. Most of the plants employed by the agricultural residential areas have biologically active compounds that are proven by generations to be potent against specific disorders [3]. The prevention and treatment of diseases by the employment of obtainable and accessible medicinal plants in a very particular locality will still play important roles in medical health care implementation within the developing countries as plants frame the first source of recent pharmaceuticals and health care products [4]. Natural products are therefore gaining attention as another for antimicrobial agents.

Advantages

- Helps protect your skin from a skin infection, inflammation and even treats burn scars.
- For wound healing burn scars due to its natural anti-inflammatory properties
- Cooling effect to absorb heat out of the skin.
- Antibacterial and Antinflammatory

Disadvantages

- Ingestion can caused digestive irritation, including diarrhes and nausea.

II. MATERIAL AND METHOD

2.1 Material



The fresh leaves of Ratanjyot(Euphorbiaceae) were collected .The fresh leaves were washed, chopped into smaller pieces and also the shead-dried. The dried leaves were ground into powder with the help of mortar and pestle[5].

A. Equipment

The equipment used was an beam balance, bottles, funnel, rotary vacuum evaporator, petri dish, beaker glass, paper, cotton, needle ose, incubators, electric cooker, autoclave, Bunsen, micro pipette, calipers and a collection glassware[6].

2.2 Method

A. Extraction

The extraction process done by maceration method using 50g of the leaf powder was macerated with 100 ml of methanol for 48 h and agitated intermittently. The filtrate obtained was separated from the solvent with a rotary evaporator vacuum. The yield of each extract (% w / w) was calculated with the formula = (weight of crude extract (g) / weight of powder (g)) x 100%[7]

B. Formulation Table

Ingredients	Quality Taken	Role
Wool fat	1gm	Emollient
Hard paraffin	1gm	Emollient
White soft paraffin	17gm	Ointment Base
Cetostearyl alcohol	1gm	Emollient
Jatropa plant leaf extract	10ml	Active Ingredients

C. Formulation

1. Accurately weight the all ingredients.
2. Take a porcelain dish .
3. In porcelain dish add wool fat ,hard paraffin ,white soft paraffin and Cetostearyl alcohol beaker and melt it .
4. Then after melting above all ingredient after cooling add the our active ingredient.

5. Then after some time our preparation get solidified take it on ointment slab.
6. Then mixed all content on ointment slab properly.
7. Then after mixing filled our preparation in container.



III. EVALUATION OF WOUND HEALING OINTMENT

- **Physical Properties:** -The Ointment was observed for color and odor
- **Appearance:** -The appearance of the ointment was judged by its color, pearlscenceaan Roughness and graded.
- **After feel:-** Emolliency, slipperiness and amount of residue left after the applying of fixed amount of ointment was checked.
- **Type of smear:-** After application of ointment , the type of film or smear formed on the skin Were checked.
- **Ease of Removal:-** The ease of removal of the ointment applied was examined by washing the applied part with tap water.
- **Irritancy test:-** Mark an area (1sq.cm) on the left hand dorsal surface. The ointment was applied to the specified area and time was noted. Irritancy, erythema, edema, was checked if any for regular intervals up to 24 hrs and reported.
- **Determination of pH:-** The pH meter was calibrated using standard buffer solution. About 0.5 g of the ointment was weighed and dissolved in 50.0 ml of distilled water and its pH was measured.
- **Homogeneity Test :-** Test is done by applying an ointment to a piece of glass [6]. Homogeneous ointment marked by absence blobs on the smearing, flat structure and has uniform color of the dot initial smearing until the point end of basting. Weigh the ointment as much as 0.5 gram, then place it in the middle of a round glass plate.

IV. CONCLUSION

The antibacterial ointment on performed all test and we found the 10% Jatropha leaf extract in ointment can be used as a topical treatment, which had antibacterial activity, anti-inflammatory, the bioactive compound or phytochemical substances contained in Jatropha ointment responsible for antibacterial, anti-inflammatory and collagen tissue synthesis.

ACKNOWLEDGMENT

We thanks and gratitude to Trustee of Samarth Rural Educational Institute's and team of Samarth Institute of Pharmacy, Belhe, Pune with their valuable guidance and support.

REFERENCES

- [1]. Abdelgadir, H.A. and Staden, J.V. (2013) Ethnobotany, ethnopharmacology and toxicity of *Jatropha curcas* L. (Euphorbiaceae): A review. South Afr. J. Bot., 88: 204-218
- [2]. Li X, Krumholz LR. Regulation of arsenate resistance in *Desulfovibrio desulfuricans* G20 by an arsRBCC operon and an arsC Gene. J. Bacteriol. 2007;189(10):3705-11
- [3]. WHO (World Health Organization). Traditional Medicine; 2003. Fact sheet No 134.

- [5]. Ivanova DD, Gerova T, Chervenkov, Yankova T. Polyphenols and antioxidant capacity of Bulgarian medicinal plants. *J. Ethnopharmacol.* 2005;96:145-150.
- [6]. Helal MS, Youssef FM, Moursi MK, Khalil WF, Abdel-Daim MM. Effectiveness of prebiotic as an alternative to the antimicrobial growth promoter on growth performance, blood constituents, intestinal healthiness and immunity of broilers. *AJVS.* 2015;45(1):13-25. DOI: 10.5455/ajvs.179869
- [7]. Igbinsola, O.O., Igbinsola, E.O., Aiyegoro, O.A. (2009). Antimicrobial activity and phytochemical screening of stem bark extracts from *J. curcas* (Linn). *Afr.J. Pharmacy, Pharmacology*, 3, 58-62.
- [8]. Fardiaz, S. 1989. *Mikrobiologi Pangan*. Departemen Pendidikan Dan Kebudayaan. Direktorat Jenderal Pendidikan Tinggi. PAU Pangan Dan Gizi . IPB. Bogor
- [9]. Volk, W.A. and Wheeler, M.F. 1993. *Mikrobiologi Dasar*. Alih Bahasa : Markham. Penerbit PT Gelora Aksara Pratama, Jakarta.
- [10]. Ekundayo, F.O., Adeboye, C.A., Ekundayo, E.A. (2011). Antimicrobial activities and phytochemical screening of pignut (*J. curcas* Linn.). *J. Med. Plants Res.*, 5, 1261-1264.
- [11]. Igbinsola, O.O., Igbinsola, E.O., Aiyegoro, O.A. (2009). Antimicrobial activity and phytochemical screening of stem bark extracts from *J. curcas* (Linn). *Afr.J. Pharmacy, Pharmacology*, 3, 58-62.
- [12]. Fardiaz, S. 1989. *Mikrobiologi Pangan*. Departemen Pendidikan Dan Kebudayaan. Direktorat Jenderal Pendidikan Tinggi. PAU Pangan Dan Gizi . IPB. Bogor
- [13]. Volk, W.A. and Wheeler, M.F. 1993. *Mikrobiologi Dasar*. Alih Bahasa : Markham. Penerbit PT Gelora Aksara Pratama, Jakarta.
- [14]. . Farrel, K.T. 1990. *Spices, Condiments And Seasonings*. AVI Pubs. Co. Inc. Westport. Connecticut. Van Beek, T.A. 1999. *Modern Methods of Secondary Product Isolation and Analysis*. In: Walton N.J. and Brown, D.E. *Chemicals from Plants, Perspectives on Plant Secondary Products*. Imperial College Press, London.
- [15]. Pelczar, M.J., Chan, E.C.S. and Krieg, N.R. 1993. *Microbiology Concepts and Application*. Mc Graw-Hill, Inc. New York.
- [16]. Pelczar, M.J. and Reid, R.D. 1979. *Microbiology*. New York, McGraw Hill Book Co.
- [17]. Lay, B.W. dan Hatowo, S. 1992. *Mikrobiologi*. Rajawali Press, Jakarta.