



“FORMULATION AND EVALUATION OF ALLICIN ONITMENT FOR A WOUND HEALING”

¹Miss . Telange - Patil P.V, ²Raut A.M.,

¹DAssistant Professor, ²Student.

¹ Department of Pharmaceutics.,

¹College of Pharmacy Paniv, Maharashtra, India.

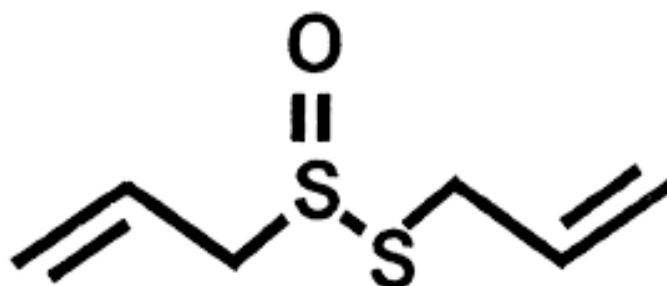
Abstract: Amaryllidaceae family Garlic used as traditional treatment method. It is used to thermal injury damage the skin, the physical barrier protecting underlying tissues from invading micro-organisms is compromised and the host's immune system becomes suppressed, facilitating colonization and infection of burn wounds / healing wounds. Wounds with micro-organisms throughout history, many different cultures have organized the potential use of garlic for prevention and treatment of different diseases. It reduces the risk for cardiovascular disease, anti-tumor and anti-microbial effect and shows benefits on high blood pressure concentration. It is used for treating various health problems. Garlic is widely known for its biological properties and plays an important role as an anti-microbial, antibiotics. Its use for topical use/ application of garlic extract can potentially be effective on psoriasis, alopecia areata, keloid scars, wound healing, cutaneous corn, viral and fungal infection. Medical values of garlic is its broad-spectrum therapeutic effect with minimal toxicity. Garlic has anti-microbial activity against many genera of bacteria, fungi and viruses. Garlic product used as sources of medicine in many ways in human beings in their today life.

Key Words: Allicin, Anti-bacterial, microbial, anti-fungal, herbal medicine, traditional medicine, hypertension, etc.

1. INTRODUCTION:



Img .1. Garlic.



Allicin

Garlic : *Allium Sativum*.

Family : amaryllidaceae.

Allium Sativum , which is well- known as garlic belongs to family Amaryllidaceae. India ranks second in garlic production. Allium sativum is conventionally employed to cure infection. In India the excellent surviving medical book, Charaka- Samhita , suggested the consumption of garlic to treat heart disease and arthritis 1900 years ago. ⁽¹⁾ Recommended Garlic is useful compound in treatment of arthritis , toothache , chronic cough , constipation , parasitic infestation snake and insect bites as well as infectious diseases (as antibiotic). Allicin (Allyl 2- propenethiosulfinate or diallyl thiosulfinate) is the principle bioactive compound present in the aqueous extract crushed the garlic cloves produce allicin from allicin (present in intact garlic) . Garlic has proven to be effective against a plethora of gram- positive , gram-negative and acid= fast bacteria, The anti bacterial activity of garlic is widely attributed to allicin. ⁽²⁾. Garlic is nicknamed as Russian penicillin for its widespread use as a topical and systemic anti- microbial agents: commonly used in many cultural as a excitement and reputation of healing power. Garlic extract inhibits the growth of gram-positive and gram- negative bacteria such as staphylococcus , streptococcus and helicobacter pylori. Allicin is considered to be the most potent anti-bacterial agents. The anti- microbial properties of garlic were first described. Its against many species of bacteria, viruses, parasites , protozoam and fungi : reduced in mice that had been treated using liquid garlic extract. Used on the topical for skin parasites , ring worms and warts . Ages garlic extract exhibit direct antioxidant effect ⁽³⁾. Garlic is bulb growing 25-70 cm with hermaphrodite flowers. Allicin is the most important components of garlic and generally claimed responsible for its numerous beneficial effects including antibacterial, antiviral , anti fungal , and anti oxidative effect . It have anti bacterial activity against multi drug clinical pathogens and can be used for prevention of drug resistant microbial disease lesions that were caused by skin fungi in rabbits and guinea pigs were treated with externa; applications of garlic extract and began to heal after seven days⁽⁴⁾. Formulated garlic ointment prevented biofilm development by number of different gram- positive / gram - negative bacteria commonly found in infected wounds⁽⁵⁾. According to the potential anti viral and anti- inflammatory effects of garlic and the clinical difficulties in the genetic wart treatment in this clinical trial we investigated the efficacy of garlic extract compared with cryotherapy in the treatment of made genital wart seek new effective treatments with lower expenses and fewer side effects.⁽⁶⁾ The aged garlic compound saponin study type in - vitro and cell lines of human endothelial cells protecting cells against the growth inhibition and DNA damages induced by H₂O₂ There possible mechanism scavenging intracellular reactive oxygen species ⁽⁷⁾. Fights bacteria like an antibiotic garlic reported to be more effective than penicillin against the organism responsible for cholera dysentery and enteritis . Increase the activity of white blood cells and T- helper cells (natural killer cells) especially fresh , raw garlic , Acne , cutaneous eruption , pimples . Externally used garlic oil , ointments, or poulties for abscesses, arthritis, dispelling hard swelling, Earaches , insect bite, toothache, wounds⁽⁸⁾. When garlic damaged

i.e. attacked by microbes crushed , cut,chewed, dehydrated , pulverised or exposed to water lyses the cytosolic cysteine sulfoxides (Allin).

Typically, Allin is converted to allicin by allinase. It is used to treat aches and pains, leprosy, deafness, diarrhoea , constipation , parasitic infections. Also used to lower blood pressure , food poisoning , tumors and mild anti coagulants⁽⁹⁾. Garlic immunological and anti bacterial properties response of health benefits - infection, leishmaniasis ; Related compound - Actin, talin,paxillins ; Garlic product - fresh garlic extract (Bibliography Ghazanfari et.al., 2006) H.B- bacteria ; related compounds - phenolic compound ; Garlic product- Garlic shell , Bibliography (Kallel et al., 2014) H.B - Anti fungal, microbial, chemical burns, treat a planter wart Related compound - Alliace , Allicin allyl disulphide , diallyl disulphide , allicin G.P.- garlic bulb extract , garlic clove, garlic paste , crushing garlic (Bibliography (Lanzotti et al. 2012; pirak et al. 2012) Schimmel et. al , 2019) . Inhibiting Platelet aggregation , mitigating morphostructural changes in the vascular wall.⁽¹⁰⁾

2. Material and Equipments :

2.1 Materials:

Sr. No.	Ingredients
1.	Allicin
2.	White paraffin
3.	Neem oil
4.	Hylorenic acid
5.	Haldi extract
6.	Glycerin

Table 1. Materials of Formulation.

2.2 Equipments :

Sr.No.	Equipments
1.	Centrifugation
2.	Viscometer
3.	Autoclave
4.	pH paper
5.	Petri dish
6.	Stirrer

Table.2.Use of Equipments

3.Method of preparations :

Extract (Garlic ingredients)

The preparation comprises of freeze dried garlic extract

1. Dispersing the freezed dried garlic powder in light liquid paraffin with mechanical stirrer to get homogeneous mixture of garlic powder and 11g tit liquid paraffin m the ratio of 1:5 to (w/w%).

2. Temperature of 40⁰C and any suitable perfume is added at 0.alpha temperature of 30⁰C and Stirring countineously ⁽¹¹⁾.

4. Formula:

Sr No.	Ingredients	Quantity taken	Quantity given	Use
1.	Allicin powder	37gm	17.0 gm	Anti-microbial , Anti-inflammatory
2.	White soft paraffin	39gm	19.0gm	Lubricant , Soothing agent
3.	Neem oil	6.0 ml	3.6ml	Anti-oxidant
4.	Hylorenic acid	8.0 ml	3.7ml	Healing agent
5.	Turmeric extract	10.0 ml	4.6ml	Antiseptic

Table .3. Formula for the use of final formulation.

5. Formulation:

Dispersing the freezed dried garlic powder

↓ Stirrer

Liquid paraffin (white soft paraffin)

↓Water bath (60-

65⁰C)

Stirrer Contineuosly

↓

Cool the mixture

Add the garlic powder and liquid paraffin

↓

Add the perfume ⁽¹²⁾

Chart .1. Formulation

These are semi-solid dosage form for the topical administration and transdermal drug delivery while supporting regulatory compliance. Areas of application includes ointments, gels, suppositories. Oily ingredients were heated in a beaker to about 70°C using water bath. After melting of all components, the mixture was slowly cooled and stirred for 30 min. Until congealed using a stirrer at 500rpm to evaluation of organoleptic properties and pH of garlic ointments, thermal stability tests and centrifugation as well as rheological and microbiological evaluations were performed.⁽¹³⁾.



Img . 2. wound.



Img .3. Final Formulation of Wound healing ointment.

6.Evaluation Tests:

6.1 Physical Evaluation :

6.1.1 Colour :

6.1.2 Consistency:

6.2 Washability:

Formulation applied on skin and then ease and washing with water⁽¹⁴⁾.

6.3 pH :

1% A solution for formulation was measured⁽¹⁴⁾.

6.4 Spreadability :

Better Spreadability⁽¹⁴⁾.

7. Result and Conclusion:

7.1 Result:

The studies made on bacteria concerning garlic are not limited only with social originated infections. Factors effective against micro-organism, bacteria, fungal. Garlic plays role as antibiotic, anti-fungal, anti-microbes, anti-cancer, anti-immune, anti-viral and the main is wound healing (anti-bacterial).

7.2 Conclusion:

Garlic aqueous extract has anti-bacterial properties. It also natural additive for hamburger. It against other Gram-positive and Gram-negative bacteria, which must be investigated in further studies. Garlic has a lot of benefits and potential uses in preventing and curing different diseases, problem of bacterial resistance in growing, and the outlook for the use of anti-bacterial drugs in the future is still uncertain. They inhibit gram positive and gram negative pathogens. They inhibit the micro-organisms.

8. Reference :

1. Minna sasi, Sandeep Kumar, Abhijit Dey, Yamini Tak. Bioactives and Its role in Alleviating and pathologies (MDPI)
2. Leyla Bayan, Peir Hossain Koulivand, and Ali Gorji. A review of potential therapeutic effects (Avicenna Journal of Phytomedicine)
3. Gebreselema Gebreyonannes, Mebrahtu G. Tedla: Medicinal values of garlic (Review)
4. Haben Fesseha, MVSC, DVM (Review) Therapeutic Value of Garlic
5. Pushpalatha Nidadavolu, Wail amor, Phat L. Tran, Tanet Dertier Jane A. Colmer - Hamod and Abdul N. Hamood. (Garlic Ointments inhibits biofilm formation by bacterial pathogens from burn wounds).
6. Zahra Beygom Mousavi, Abolfath Mehrabian, Fereshteh Gol Fakhrabadis Forogh Namjoyan (A clinical Study effect of garlic extract versus cryotherapy in the treatment male genital wart) Dermatologica Sinica.
7. Ao Shang, Shi-yu cao, Xiao-yu-xu.: Ren-youGan. Bioactive compounds and Biological functions of Garlic.
8. Zubair Laba, Mustafijar Rehman, Proven Health Benefits of Garlic - A review

9. S.V.Rana , R.Pal , K Vaiphei , Sanjeev K. Sharma and R.P.Ola Garlic in Health and diseases (Cambridge University Press).

10. Teofilo Macario Espinoza Tellez, Emir valwncia , Margarita Albarran , Dagoberto Diaz (Garlic and Its Beneficial Properties for Health) Review

11. Sanjay Suri , J. Singh , Ulhas Dhuppad , A.K. Bhatham (Method of preparing Garlic ointment).

12. Sanjay Suri , J. Singh , Ulhas Dhuppad , A.K. Bhatham (mehod of preparing Garlic Ointment for the Skin).

13. Maryam Jahandideh , Paria Kharazi , Zehra Jafariazar , Shirin Rahimi (Topical Product from Allium Sativum Retrieved from Iranian Traditional medicine)

14. Monoj Suva, Preparation and Evaluation of Garlic extract containing Herbal Anti - acne gel.