



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

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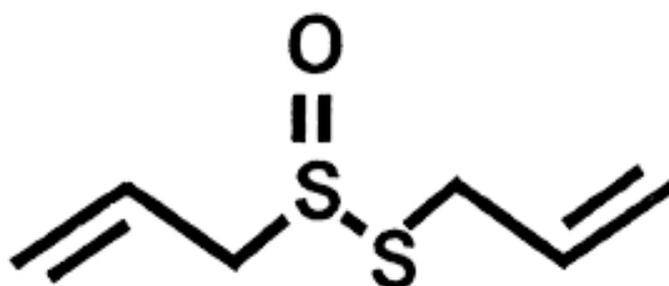
**Abstract:** Amaryllidaceae family Garlic used as traditional treatment method. It is used to thermal injury damage the skin, the physical barrier protecting underlying tissues from invading micro-organisms is compromised and the host's immune system becomes suppressed, facilitating colonization and 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. <sup>(1)</sup> 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. <sup>(2)</sup>. 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 <sup>(3)</sup>. 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<sup>(4)</sup>. Formulated garlic ointment prevented biofilm development by number of different gram- positive / gram - negative bacteria commonly found in infected wounds<sup>(5)</sup>. 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.<sup>(6)</sup> 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 H<sub>2</sub>O<sub>2</sub> There possible mechanism scavenging intracellular reactive oxygen species <sup>(7)</sup>. 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<sup>(8)</sup>. 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<sup>(9)</sup>. 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.<sup>(10)</sup>

## 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 40<sup>0</sup>C and any suitable perfume is added at 0.alpha temperature of 30<sup>0</sup>C and Stirring countineously <sup>(11)</sup>.

**4. Formula:**

| Sr No. | Ingredients         | Quantity taken | Quantity given | Use                                   |
|--------|---------------------|----------------|----------------|---------------------------------------|
| 1.     | Allicin powder      | 37gm           | 17.0 gm        | Anti-microbial ,<br>Anti-inflammatory |
| 2.     | White soft paraffin | 39gm           | 19.0gm         | Lubricant ,<br>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-

65<sup>0</sup>C)

Stirrer Contineuosly

↓

Cool the mixture

Add the garlic powder and liquid paraffin

↓

Add the perfume <sup>(12)</sup>

**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.<sup>(13)</sup>.



**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<sup>(14)</sup>.

### 6.3 pH :

1% A solution for formulation was measured<sup>(14)</sup>.

### 6.4 Spreadability :

Better Spreadability<sup>(14)</sup>.

## 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.

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