

## Armamentarium of wart control by using *Allium sativum*, malus and pumila mill

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### Abstract

*Human papillomavirus (HPV)* infection is the cause of warts. The virus induces the top layer of skin (epidermis) to create an overabundance of the hard protein keratin. A wart has a harsh, gritty texture due to the excess keratin. Skin warts are microscopic growths brought on by a viral infection. It can be treated with over the counter medications. These are usually rough, tiny growths that can develop on the hands, feet, or genitalia, among other regions of the body. Garlic extract, which has a wide range of possible health advantages, is made from garlic cloves. It is a metabolite-rich, disease-preventive nutraceutical spice that is enhanced with polyphenols and organosulfur. It contains chemicals with antibacterial and antioxidant effects, including allicin. Because apple cider vinegar extract has so many potential benefits, it is frequently used for skin care. Because it lowers oil and bacteria on the skin, it has been used to treat acne. By reducing inflammation, it might also be beneficial for skin disorders like eczema.

**Keywords:** Reducing bacteria; Disease preventing; *Allium sativum*; Malus and pumila mill.

### 1. Introduction

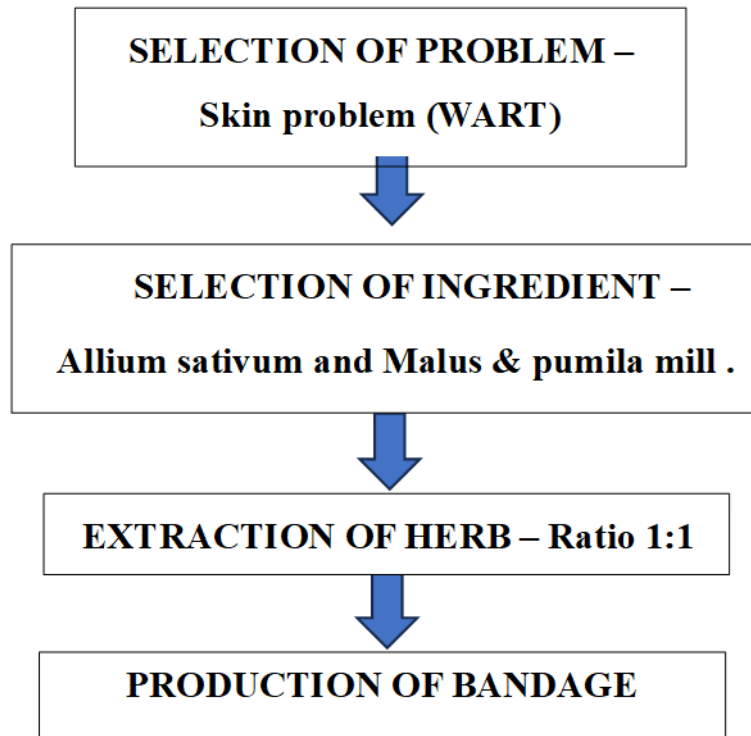
Lesions called warts can develop on the skin and mucosa. The *human papillomavirus (HPV)* is the cause of warts; there are more than 100 different varieties of HPV. Any location may experience HPV. The virus leads to an overabundance of the hard protein keratin to form in the epidermis, the top layer of skin. A wart's hard, rough texture is caused by excess keratin. Some strains of the human papilloma virus are responsible for warts (*HPV*). The wart's skin cells contain the virus. A family of viruses known as HPV affects the mucosa, or moist membranes, of the body as well as the skin. The HPV virus comes in over a hundred strains. The plant known as garlic (*Allium sativa*) has papery hoods surrounding its blossoms and long, flat leaves that resemble grass. At the end of a tall stalk are clusters of greenish white or pink flowers. The portion of the plant that is utilized for food and medicine is the flower bulb, from which the stalk grows immediately. One of garlic's main ingredients, allicin, has antibacterial qualities and is frequently researched for its ability to suppress the immune system and fight viruses. Smashed apples are fermented to produce apple cider vinegar. Along with minerals like vitamin C and B vitamins, it also includes acetic acid. However, it has also historically been utilized in medicine. ACV's primary active ingredients are polyphenolic phytochemicals and acetic acid. Additional organic acid constituents include succinic, ascorbic.

#### Objectives

- To identify herb for treating wart
- To extract *Allium sativum*, malus and pumila mill
- To develop wart bandage
- To test the developed bandage against wart
- Antimicrobial test
- Anti - inflammatory test

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### 1.1. Flow chart



### 1.2. Selection of problem (wart)

A wart is a small, typically hard, benign growth on the skin that is caused by the virus known as the *human papillomavirus (HPV)*. Among other body parts, warts can appear on the hands, foot, or genitalia. They often have a rough texture, and they can vary in size and appearance. There are various types of warts, including common warts, plantar warts (found on the soles of the feet), flat warts (small, smooth growths often on the face or legs), and genital warts. While warts are usually harmless and may go away on their own, for people who would prefer to get rid of them, there are treatment options such as topical medications, cryotherapy (freezing), laser treatment, and surgical removal. Over the fingers is the most common way that warts present, but plantar (*verrucae vulgaris*) and knee warts are also common. It should be noted that little capillaries show up when plantar warts are gently pared back; these capillaries are absent when the pared skin is only callus. The wart seems to disappear when the skin or soil no longer permits the virus to multiply. It is important to note that warts are usually rough to the touch, unlike molluscum contagiosum, another frequent self-limiting virus infection.

### 1.3. Selection of herb

Garlic: Rub a clove of crushed garlic onto the wart and cover it with a bandage. There are many who think garlic can help with warts because of its antibacterial characteristics.

### 1.4. Selection of Antimicrobial Agent

Apple cider vinegar (ACV): Enzyme-rich apple cider vinegar (ACV): Apply a cotton ball soaked in ACV to the wart, covering it with a bandage. Let it sit overnight and keep doing this until the wart vanishes.

### 1.5. Selection of material

COTTON: A natural fiber celebrated for its versatile qualities, boasts remarkable properties that contribute to its widespread use in textiles. Foremost among these attributes is its exceptional absorbency. The unique structure of cotton fibers, composed of hollow cells, allows them to readily absorb and retain significant quantities of liquid. The fiber's natural resistance works to inhibit the growth of bacteria on the fabric, reducing the risk of unpleasant odors and promoting hygiene. Furthermore, cotton's hypoallergenic nature makes it a preferred choice for those with sensitive skin, minimizing the likelihood of irritation and allergic reactions.

### 1.6. Wart bandage

Wart bandages stand out for their natural approach to treating warts, incorporating plant extracts or essential oils alongside active substances like salicylic acid. This ++blend not only enhances therapeutic benefits but also tends to be gentler on the skin. Beyond their natural composition, these bandages offer a non-invasive solution, applied externally to eliminate the need for invasive procedures. The ease of self-application adds to their convenience, making wart management more accessible for individuals seeking a user-friendly and at-home solution.

### 1.7. Extraction of herb

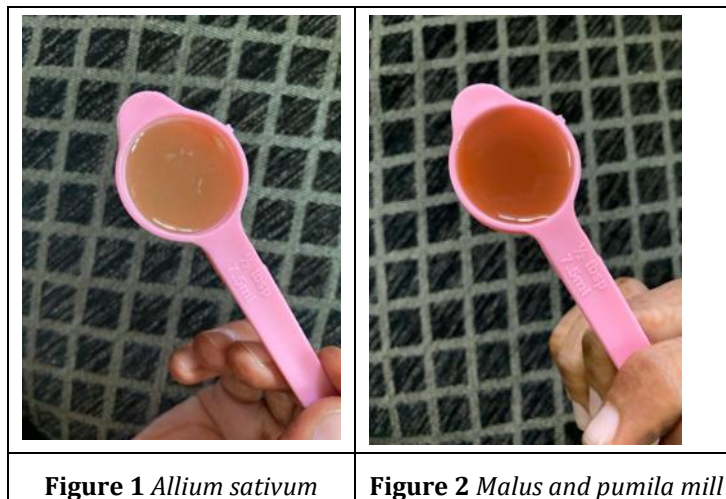
Extraction of apple cider vinegar and garlic by grinding into a paste and liquefying by extraction process. Then both the herbs are taken in equal ratio that is 1:1.

### 1.8. Finishing

*Allium sativum*, *malus* and *pumila mill* is taken in the ratio of 1:1 and then converting the extracted herb into a jelly form by adding gelatin to it covering it into a semi-solid form and adding the extracted herb into commercial wart bandage. Placing the wart bandage on the skin to reduce the wart growth level.

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## 2. Materials and methods



The garlic extract is taken and then apple cider vinegar is mixed with the garlic extract where both extract in ratio of 1:1

### 2.1. Mixing of garlic and apple cider vinegar



**Figure 3** *Allium sativum* and *Malus and pumila mill*



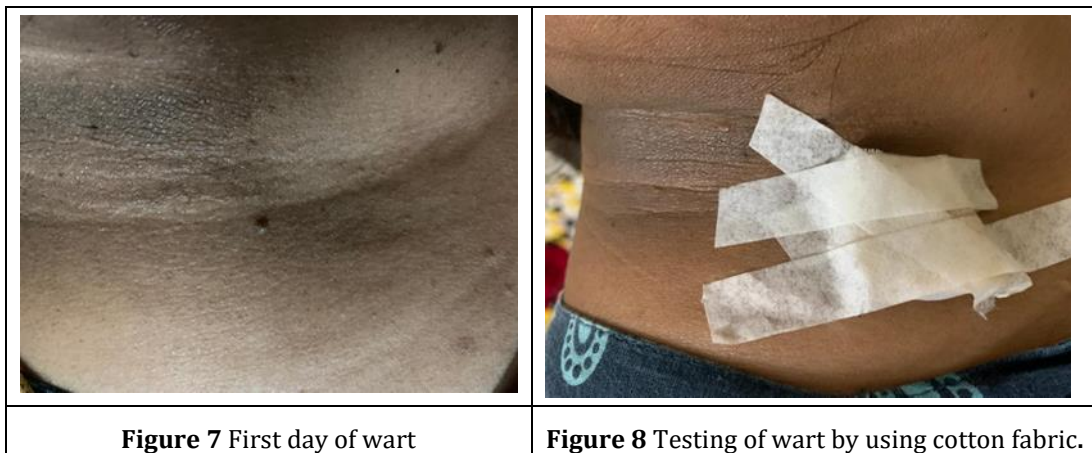
Gelatin 0.75 ml with ingredients (garlic and apple cider vinegar )

### 2.2. Bandage



**Figure 6** Wart Bandage

### 2.3. Wart analysis



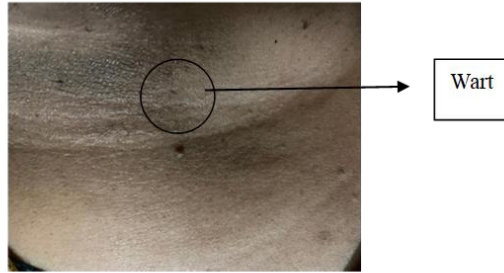
The plate shows that the wart is been tested by garlic and apple cider vinegar by using cotton fabric

## 2.4. Testing

### 2.4.1. Qualitative analysis

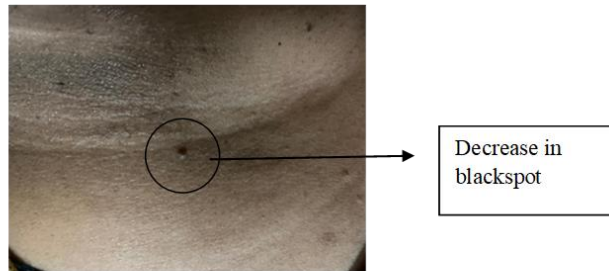
Person 1

**DAY 1**



**Plate : 06**

**DAY 2**



**Plate : 07**

The plate 7 shows that the wart is been tested by garlic and apple cider vinegar by using cotton fabric and it also shows the decrease in blackspots.

- **One week**



**Figure 9** Presence of dark pigmentation and number of warts

The analyzation shows that this plate:8 shows the presence of dark pigmentation and number of warts.

- **Two week**



**Figure 10** Reduction in pigmentation and reduction of wart size

The analysis shows a reduction in pigmentation and reduction of wart size.

#### 2.4.2. Person 2

<p><b>Figure 11</b> First day of wart on the second person</p>	<p><b>Figure 12</b> Wart is being tested by using <i>Allium sativum</i>, <i>malus</i> and <i>pumila mill</i></p>

The plate shows that the wart is being tested by garlic and apple cider vinegar by using cotton fabric. It shows a decrease in the wart.

#### 2.4.3. Final output



**Figure 13** Corn cap bandage

The final output is tested with a corn cap bandage. The corn cap is filled with garlic and apple cider vinegar.

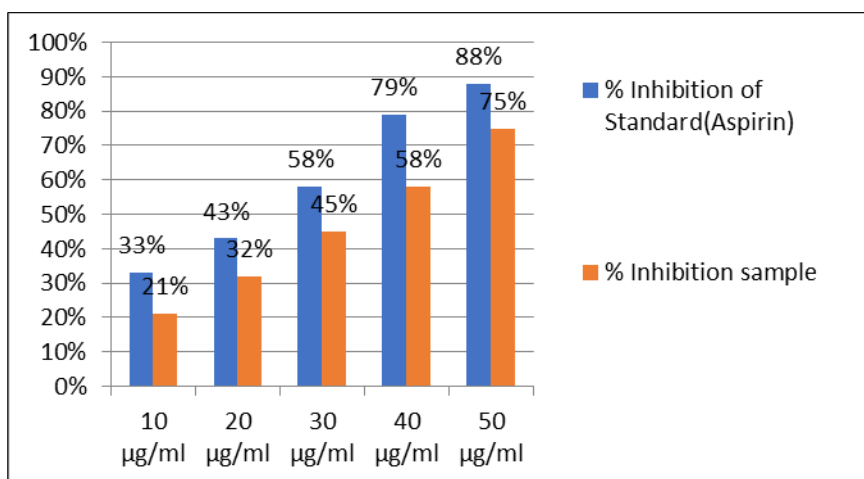
## 2.5. Anti – inflammatory activity

### 2.5.1. Inhibition of protein denaturation

Inhibition of protein denaturation was evaluated by the method of Mizushima and Kobayashi 1968 and Sakat *et al.* 2010 with slight modification. 500 µL of 1% bovine serum albumin was added to 10, 20, 30, 40 and 50 µL of sample. This mixture was kept at room temperature for 10 minutes, followed by heating at 51°C for 20 minutes. The resulting solution was cooled down to room temperature and absorbance was recorded at 660 nm. Aspirin using as a standard.

**Table 1** Anti – inflammatory activity

Concentration	% Inhibition of Standard(Aspirin)	% Inhibition 4A
10 µg/ml	33%	21 %
20 µg/ml	43%	32%
30 µg/ml	58%	45%
40 µg/ml	79%	58%
50 µg/ml	88%	75%



**Figure 14** 75% of anti – inflammatory activity

## 3. Results

The given extract shows an Antiinflammatory activity. The higher concentration of 50 µg/ml of the sample shows 75%. The 50 µg/ml standard Aspirin drug shows 88 %.

$$\text{Percentage inhibition} = \frac{100 - (\text{O.D.of test} - \text{O.D.of product control}) \times 100}{\text{O.D.of Control}}$$

**Table 2** Anti – microbial report

Organisms	<i>E.Coli</i>	<i>S.aureus</i>
Apple cider vinegar+Garlic	1.0 cm	0.7 cm
Standard (Bacteria-Chloramphenicol)	0.5 cm	0.5 cm

### 3.1. Anti-microbial Report

The results finds Apple cider vinegar Garlic antimicrobial activity against the *E.Coli* and *S.aureus*. The result finds that Apple cider vinegar Garlic combo is Excellent microbial activity when compare with Standard drug.

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#### 4. Conclusion

Wart bandages are adhesive bandages with chemicals, also referred to as medicinal wart bandages or wart removal patches. By relaxing the skin and the wart, these bandages facilitate the progressive removal of the damaged tissue. Wart bandages are an easy, over-the-counter way to get rid of warts. the directions on the product's label and speak with a medical provider if you're worried about a wart or if over-the-counter remedies aren't working. Using readily available substances, homemade cures for warts might be an affordable and practical approach to treat them. Anecdotal evidence suggests that common household items like garlic and apple cider vinegar occasionally work. Apple cider vinegar and garlic liquid are combined with gelatin to create a semi-liquid mixture.

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#### Compliance with ethical standards

##### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

##### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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