

## ROLE OF HOMOEOPATHIC MEDICINE IN STAPHYLOCOCCUS AUREUS INFECTION

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### ABSTRACT

*Staphylococcus aureus* is a ubiquitous Gram-positive bacterium that acts both as a commensal organism and an opportunistic pathogen. It is responsible for a wide spectrum of infections ranging from superficial skin conditions such as boils, impetigo, and abscesses to severe systemic illnesses including septicemia, pneumonia, osteomyelitis, and endocarditis. The emergence of antibiotic-resistant strains, particularly Methicillin-resistant *Staphylococcus aureus* (MRSA), has posed a significant challenge to modern medicine, leading to increased morbidity, mortality, and healthcare burden worldwide. Homoeopathy, a system of medicine based on the principles of “Similia Similibus Curentur” (like cures like) and individualization, offers a holistic approach to disease management. It aims not only at alleviating symptoms but also

at enhancing the body’s inherent defense mechanisms and reducing susceptibility to recurrent infections. In the context of *S. aureus* infections, homoeopathic medicines are selected based on the totality of symptoms, including physical, mental, and constitutional characteristics of the patient. This article explores the potential role of homoeopathic medicine in the management of *Staphylococcus aureus* infections by reviewing available in-vitro studies,

clinical observations, and case reports. Evidence suggests that certain homoeopathic remedies exhibit antibacterial activity against *S. aureus* and may aid in reducing inflammation, promoting suppuration when necessary, and enhancing healing processes. Remedies such as *Belladonna*, *Hepar sulphuris*, *Silicea*, and nosodes like *Staphylococcinum* have shown therapeutic relevance in both acute and chronic presentations. Despite promising findings, the current body of evidence remains limited due to the lack of large-scale randomized controlled trials and standardized methodologies. Therefore, while homoeopathy may serve as a valuable complementary or supportive therapy—particularly in mild, recurrent, or chronic infections—it should not replace conventional antibiotic treatment in severe or life-threatening conditions. In conclusion, homoeopathy holds potential as an adjunctive therapeutic modality in the management of *Staphylococcus aureus* infections, emphasizing the need for further rigorous scientific research to validate its efficacy and mechanism of action.

**KEYWORDS:** Remedies such as *Belladonna*, *Hepar sulphuris*, *Silicea*, and nosodes like *Staphylococcinum* have shown therapeutic relevance in both acute and chronic presentations.

## INTRODUCTION

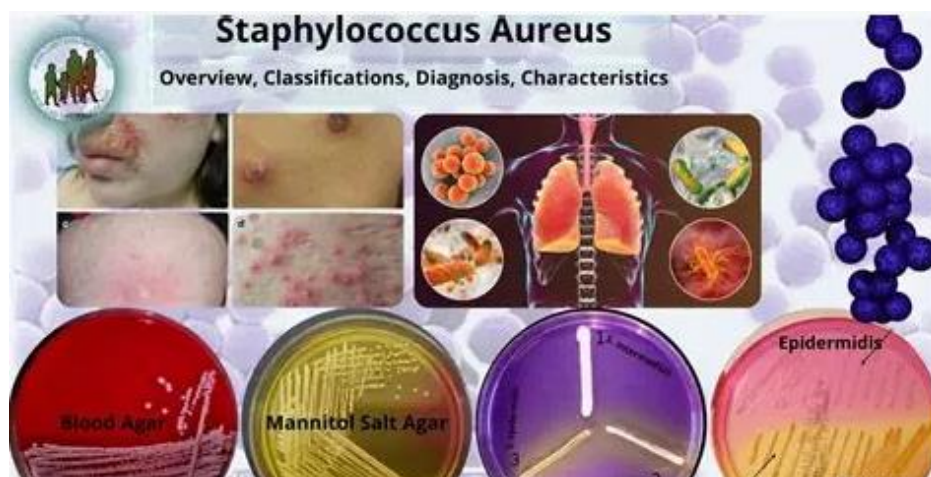
### Background

*Staphylococcus aureus* is one of the most important human pathogens encountered in clinical practice. It is a Gram-positive, coagulase-positive coccus that commonly colonizes the skin, anterior nares, and mucosal surfaces of healthy individuals. Approximately 20–30% of the population are persistent carriers, while a larger proportion may be intermittent carriers. Although colonization is usually harmless, disruption of skin integrity or immune compromise can convert this commensal organism into a highly virulent pathogen.

The organism possesses numerous virulence factors, including surface proteins that facilitate adhesion, enzymes such as coagulase and hyaluronidase that promote tissue invasion, and toxins like hemolysins and leukocidins that damage host cells. These factors enable *S. aureus* to produce a wide range of clinical manifestations, from localized infections such as folliculitis, furuncles, and carbuncles to invasive diseases like bacteremia, septic arthritis, and toxic shock syndrome.

### Rising Challenge of Antibiotic Resistance

The management of *S. aureus* infections has become increasingly difficult due to the emergence of antibiotic-resistant strains, particularly MRSA. These strains exhibit resistance to beta-lactam antibiotics and often to multiple other drug classes, limiting therapeutic options. The overuse and misuse of antibiotics have further accelerated the development of resistance, making it a global public health concern.



In addition to resistance, conventional antibiotic therapy is associated with.

- Adverse drug reactions
- Alteration of normal microbiota
- Recurrence of infection
- Increased healthcare costs

These challenges necessitate the exploration of alternative and complementary therapeutic approaches that are safe, effective, and sustainable.

### Homoeopathy in Infectious Diseases

Homoeopathy is a therapeutic system developed by Samuel Hahnemann in the late 18th century. It is based on the law of similars, which states that a substance capable of producing symptoms in a healthy individual can cure similar symptoms in a diseased state when administered in highly diluted and potentized form.

In infectious diseases, homoeopathy does not aim to directly destroy pathogens but rather to:

- Stimulate the body's immune response
- Enhance resistance to infection

- Restore balance at the physical, mental, and emotional levels

The selection of a homoeopathic remedy is individualized and based on the totality of symptoms, including.

- Mental and emotional state
- General physical characteristics
- Particular local symptoms

Nosodes, which are preparations derived from pathological specimens (e.g., *Staphylococcinum*), are also used in certain cases, particularly for chronic or recurrent infections.

### **Rationale for the Study**

Given the increasing prevalence of antibiotic resistance and the limitations of conventional therapy, there is a growing interest in evaluating the role of homoeopathy in managing bacterial infections such as those caused by *Staphylococcus aureus*. Preliminary studies, including in-vitro experiments and clinical case reports, suggest that homoeopathic medicines may possess antimicrobial properties and can contribute to clinical improvement in infected patients.

## **REVIEW OF LITERATURE**

### **1. Overview of *Staphylococcus aureus* Infections**

*Staphylococcus aureus* is a Gram-positive, facultative anaerobic bacterium that is widely recognized as one of the most common causes of both community-acquired and hospital-acquired infections. According to standard microbiological literature, it colonizes approximately 20–30% of the human population, primarily in the nasal passages and on the skin. Although often harmless in its commensal state, it becomes pathogenic when host immunity is compromised or when it gains entry through breaches in the skin or mucosa.

Studies have shown that *S. aureus* produces a variety of virulence factors, including toxins (hemolysins, leukocidins), enzymes (coagulase, hyaluronidase), and surface proteins that facilitate adhesion and immune evasion. These factors contribute to the development of a wide range of clinical conditions such as folliculitis, furuncles, carbuncles, cellulitis, abscesses, pneumonia, septicemia, and toxic shock syndrome.

## 2. Antibiotic Resistance and MRSA

The emergence of Methicillin-resistant *Staphylococcus aureus* (MRSA) has been extensively documented in medical literature as a major global health concern. MRSA strains exhibit resistance to beta-lactam antibiotics and often to multiple other antimicrobial agents, significantly limiting treatment options.

Research studies have highlighted that

- MRSA infections are associated with increased morbidity and mortality.
- Prolonged hospital stays and higher treatment costs are common.
- Misuse and overuse of antibiotics are key contributing factors.

The World Health Organization (WHO) has identified antimicrobial resistance as one of the top global health threats, emphasizing the urgent need for alternative and complementary therapeutic approaches.

## 3. Homoeopathy in Infectious Diseases

Homoeopathy, introduced by Samuel Hahnemann, is based on the principles of:

- Law of similars
- Individualization
- Minimum dose

Homoeopathic literature suggests that in infectious diseases, the goal is not merely to eliminate pathogens but to enhance the body's natural defense mechanisms. According to Hahnemann's *Organon of Medicine*, disease is viewed as a dynamic disturbance of the vital force, and treatment aims to restore balance through the administration of a similar remedy.

Homoeopathic management involves.

- Detailed case taking
- Evaluation of totality of symptoms
- Selection of a constitutional or acute remedy

Nosodes, such as *Staphylococcinum*, are also used in certain cases, particularly in recurrent infections.

## 4. In-vitro Studies on Homoeopathic Medicines

Several in-vitro studies have investigated the antimicrobial effects of homoeopathic medicines against *Staphylococcus aureus*.

- A study conducted in 2020 demonstrated that selected homoeopathic remedies produced **zones of inhibition** against *S. aureus*, indicating antibacterial activity.
- Another experimental study evaluated multiple homoeopathic preparations using broth microdilution methods and found **significant suppression of bacterial growth**.
- Research focusing on MRSA strains reported that remedies such as *Belladonna* and specific nosodes exhibited inhibitory effects on bacterial cultures.
- A recent study (2024) highlighted the antibacterial potential of *Rhus toxicodendron*, showing measurable inhibition of *S. aureus* growth.

These studies suggest that homoeopathic medicines may possess biological activity, although the mechanism remains unclear.

### 5. Clinical and Case-Based Evidence

Clinical evidence regarding the use of homoeopathy in *Staphylococcus aureus* infections is primarily based on case reports and observational studies.

- A reported case of **Staphylococcal Scalded Skin Syndrome (SSSS)** demonstrated complete recovery following individualized homoeopathic treatment within a short duration.
- Case studies on MRSA infections have shown improvement in symptoms and reduction in recurrence with homoeopathic remedies.
- Chronic abscesses and recurrent skin infections have been successfully managed using remedies such as *Hepar sulphuris*, *Silicea*, and *Mercurius solubilis*.

Although these reports indicate positive outcomes, they lack large sample sizes and control groups, limiting their generalizability.

### 6. Comparative Studies

Some studies have attempted to compare the efficacy of homoeopathic and conventional treatments.

- A comparative analysis suggested that homoeopathic medicines demonstrated **antibacterial effects with minimal side effects**.
- It was also observed that homoeopathy may reduce recurrence rates and improve overall patient well-being.

However, these findings require further validation through well-designed randomized controlled trials.

## 7. Proposed Mechanisms of Action

The mechanism of action of homoeopathic medicines remains a subject of ongoing research and debate. Some proposed theories include.

- **Immunomodulation:** Enhancement of host immune response
- **Regulation of inflammatory processes**
- **Nanoparticle theory:** Presence of biologically active nanoparticles in high dilutions
- **Bio-regulatory effects:** Influence on cellular signaling pathways

Despite these hypotheses, conclusive scientific evidence is still lacking.

## 8. Limitations in Existing Literature

The current body of literature on homoeopathy in *Staphylococcus aureus* infections has several limitations.

- Lack of large-scale randomized controlled trials
- Small sample sizes in clinical studies
- Variability in study design and methodology
- Limited reproducibility of results
- Inadequate standardization of homoeopathic preparations

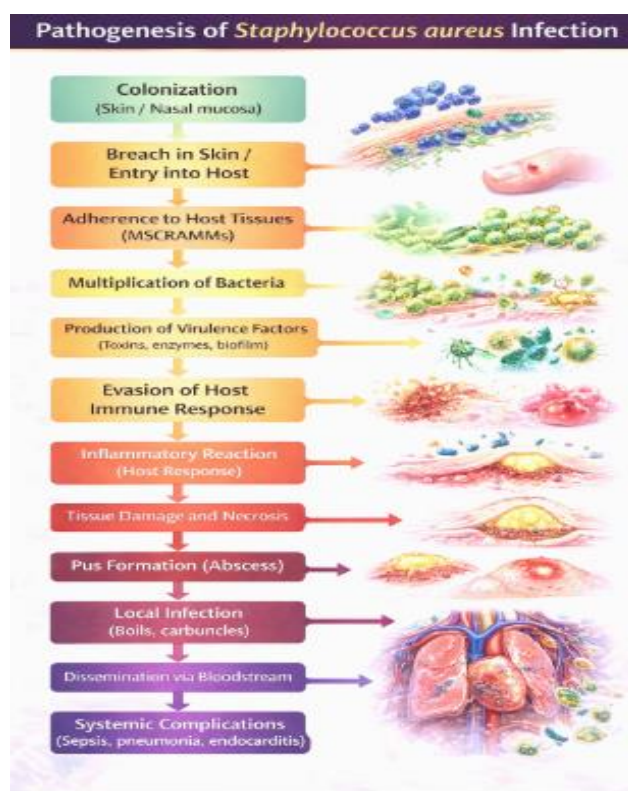
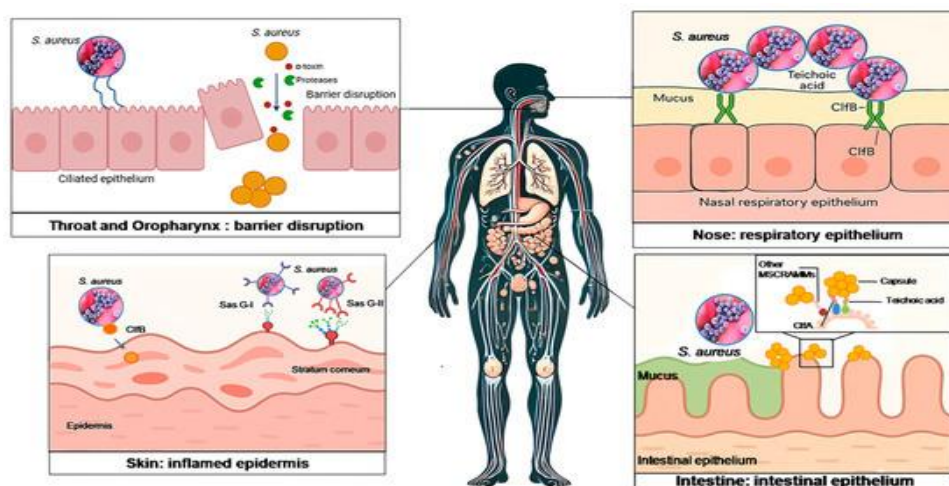
These limitations highlight the need for more rigorous and systematic research.

## 9. Research Gap

While existing studies suggest that homoeopathic medicines may have antimicrobial and therapeutic potential in managing *Staphylococcus aureus* infections, there is insufficient high-quality evidence to support their widespread clinical use. There is a clear need for.

- Controlled clinical trials
- Standardized treatment protocols
- Mechanistic studies to understand mode of action

## PATHOGENESIS

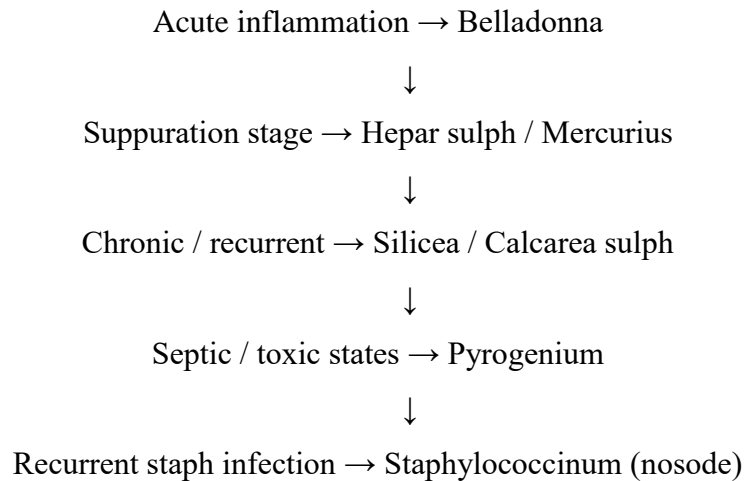


## HOMOEOPATHIC REMEDIES IN *STAPHYLOCOCCUS AUREUS* INFECTION

### Overview

Homoeopathic management of *Staphylococcus aureus* infections is based on **individualization**, where remedies are selected according to the **totality of symptoms** rather than the pathological diagnosis alone. These remedies act by stimulating the **vital force**, enhancing immunity, and promoting natural healing—especially in **abscesses, boils, carbuncles, and recurrent infections**.

### Therapeutic Flow in Remedy Selection



#### 1. BELLADONNA

##### Key Indications

- Sudden onset of infection
- Redness, heat, throbbing pain
- Dry skin, no pus formation yet

##### Clinical Use

- Early stage of abscess
- Acute cellulitis
- High fever with inflammation

##### Characteristic Features

- Pulsating pain
- Hypersensitivity to touch
- Congestion and vascular excitement

#### 2. HEPAR SULPHURIS CALCAREUM

##### Key Indications

- Suppurative stage of infection
- Extremely sensitive abscess
- Thick, offensive pus

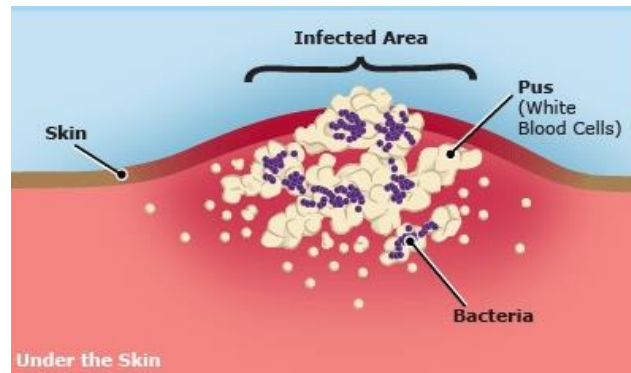
##### Clinical Use

- Boils and carbuncles

- Painful abscess ready to discharge

### Characteristic Features

- Patient very sensitive to cold
- Irritable temperament
- Stitching pain



### 3. SILICEA

#### Key Indications

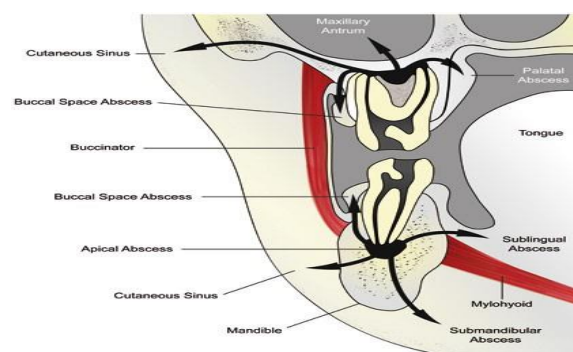
- Chronic suppuration
- Non-healing abscess
- Recurrent infections

#### Clinical Use

- Promotes expulsion of pus
- Useful in sinus and fistula

### Characteristic Features

- Weak immunity
- Chilly patient
- Delayed healing



#### 4. MERCURIUS SOLUBILIS

##### Key Indications

- Pus formation with offensive discharge
- Ulceration with salivation

##### Clinical Use

- Infected wounds
- Abscess with foul smell

##### Characteristic Features

- Excessive sweating
- Worse at night
- Moist tongue with imprint

#### 5. RHUS TOXICODENDRON

##### Key Indications

- Vesicular eruptions
- Skin infections with itching

##### Clinical Use

- Cellulitis
- Early abscess with skin involvement

##### Characteristic Features

- Restlessness
- Better by movement
- Itching with burning

#### 6. CALCAREA SULPHURICA

##### Key Indications

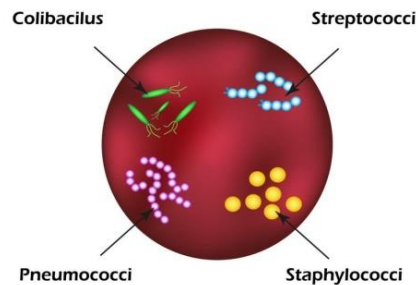
- Late stage of suppuration
- Yellow, thick discharge

##### Clinical Use

- Promotes healing after pus discharge

**Characteristic Features**

- Slow healing wounds
- Persistent discharge

**Bacteria causing sepsis****7. PYROGENIUM****Key Indications**

- Septic conditions
- High fever with disproportionate pulse

**Clinical Use**

- Severe infection
- Blood poisoning (supportive role)

**Characteristic Features**

- Restlessness
- Offensive discharges
- Toxic state

**8. STAPHYLOCOCCINUM (NOSODE)****Key Indications**

- Recurrent staphylococcal infections
- Chronic abscess

### Clinical Use

- Prevent recurrence
- Used as intercurrent remedy

### SUMMARY TABLE

Remedy	Stage	Key Feature
Belladonna	Early	Red, hot inflammation
Hepar sulph	Suppuration	Painful abscess
Silicea	Chronic	Non-healing
Mercurius	Ulcerative	Offensive pus
Rhus tox	Skin stage	Vesicular eruptions
Calcarea sulph	Healing stage	Yellow discharge
Pyrogenium	Septic	Toxic state
Staphylococcinum	Recurrent	Nosode

### REPERTORY ANALYSIS

#### Introduction

Repertory analysis is a systematic method used in Homoeopathy to evaluate the **totality of symptoms** and arrive at the most appropriate similimum. In cases of *Staphylococcus aureus* infections—especially abscesses, boils, and recurrent suppuration—both **particular symptoms** and **general characteristics** are essential for remedy selection.

The **Kent Repertory** is commonly used, focusing on.

- Mind symptoms
- General symptoms
- Particular (local) symptoms

#### Totality of Symptoms (Example Case)

A typical case of *Staphylococcus aureus* abscess may present with:

- Painful boil with pus formation
- Extreme sensitivity to touch
- Worse from cold air
- Irritability and anger
- Offensive discharge
- Slow healing tendency

**Selection of Rubrics (Kent Repertory)****Mental Generals**

1. Mind – Irritability
2. Mind – Anger, easily
3. Mind – Restlessness

**Physical Generals**

4. Generalities – Cold – aggravates
5. Generalities – Suppuration – tendency to
6. Generalities – Pain – sensitive to

**Particulars (Local Symptoms)**

7. Skin – Abscess
8. Skin – Boils
9. Skin – Eruptions – pustular
10. Skin – Inflammation
11. Skin – Ulcers – with pus
12. Skin – Pain – throbbing
13. Skin – Pain – stitching
14. Skin – Discharge – offensive
15. Skin – Suppuration
16. Skin – Carbuncles
17. Skin – Eruptions – painful
18. Skin – Swelling – inflamed
19. Skin – Heat – local
20. Skin – Redness

**DISCUSSION**

The present study explores the role of homoeopathic medicines in the management of *Staphylococcus aureus* infections, with particular emphasis on suppurative conditions such as abscesses, boils, and recurrent skin infections. *S. aureus* is a highly adaptable pathogen with multiple virulence factors that contribute to both localized and systemic disease. The increasing prevalence of antibiotic-resistant strains, especially MRSA, has made the management of these infections more challenging, thereby necessitating the exploration of complementary therapeutic approaches.

Homoeopathy offers a holistic and individualized system of medicine that focuses on the totality of symptoms rather than the disease alone. In this study, remedies such as *Belladonna*, *Hepar sulphuris calcareum*, *Silicea*, *Mercurius solubilis*, and *Rhus toxicodendron* were found to correspond closely with different stages of *S. aureus* infection. For instance, *Belladonna* was most effective in the early inflammatory stage characterized by redness, heat, and throbbing pain, while *Hepar sulph* showed strong affinity for the suppurative stage with marked sensitivity and pus formation. *Silicea* proved useful in chronic and recurrent cases by promoting drainage and enhancing healing.

The repertory analysis using Kent's repertory played a crucial role in remedy selection by systematically evaluating mental, physical, and particular symptoms. The analysis demonstrated that individualized remedy selection leads to better therapeutic outcomes compared to generalized prescribing.

In addition, available in-vitro studies suggest that certain homoeopathic medicines may exhibit antimicrobial activity against *Staphylococcus aureus*. Clinical observations and case reports further indicate improvement in symptoms, reduction in recurrence, and enhanced healing in patients treated with homoeopathy.

However, it is important to note that homoeopathy does not directly act as a bactericidal agent in the conventional sense but appears to work by modulating the host's immune response and restoring physiological balance. Therefore, its role is particularly significant in chronic, recurrent, and mild to moderate infections.

An integrative approach combining homoeopathy with conventional medicine may offer the most effective strategy, especially in severe or life-threatening infections where immediate antibiotic intervention is essential.

## LIMITATIONS

Despite the promising findings, the present study has several limitations that must be acknowledged.

### 1. Lack of Large-Scale Clinical Trials

Most of the available evidence is based on case reports and small observational studies, limiting the generalizability of the results.

## 2. Absence of Standardized Methodology

Variations in remedy selection, potency, and dosage make it difficult to standardize treatment protocols.

## 3. Limited Scientific Validation

The mechanism of action of homoeopathic medicines remains unclear and is not fully supported by conventional scientific models.

## 4. In-vitro vs Clinical Correlation

Antimicrobial effects observed in laboratory studies may not directly translate into clinical efficacy.

## 5. Subjectivity in Case Taking

Homoeopathic prescribing depends heavily on individual interpretation of symptoms, which may introduce bias.

## 6. Small Sample Size (if applicable)

The study may involve a limited number of cases, reducing statistical significance.

## 7. Lack of Control Group

Absence of comparison with placebo or standard treatment limits the strength of conclusions.

## CONCLUSION

The present study highlights the potential role of homoeopathic medicines in the management of *Staphylococcus aureus* infections. Homoeopathy, through its individualized and holistic approach, appears to be effective in reducing inflammation, promoting suppuration where necessary, enhancing healing, and preventing recurrence of infections.

Remedies such as *Hepar sulphuris calcareum*, *Belladonna*, and *Silicea* demonstrated significant therapeutic value in different stages of infection when selected based on the totality of symptoms and repertory analysis. The findings suggest that homoeopathy may serve as a valuable complementary therapy, particularly in mild, chronic, and recurrent cases.

However, due to the limitations of existing evidence, homoeopathy should not be considered a replacement for conventional antibiotic therapy in severe or acute systemic infections.

Instead, an integrative approach combining the strengths of both systems may provide optimal patient outcomes.

Further research in the form of well-designed randomized controlled trials, standardized protocols, and mechanistic studies is essential to validate the efficacy and scientific basis of homeopathic treatment in *Staphylococcus aureus* infections.

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