

# Evolution of Staphylococcus aureus bacteria and check its antimicrobial activity against on Medicinal plant containing Melghat Forest

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## Abstract

Bio chemical compound which are synthesized by Green plant that is flora it have some special quality and existence this compound are metabolically created by plants. Plant Kingdom shows diversity and each one of them possesses special characteristics. The efficiency of each plant is different with respect to another biotic reactant like pathogenic bacteria laboratory experimental observation gives us information about reactivity of *S aureus* bacteria and some plants which are collected from forest ecosystem. *S aureus* bacteria cause wound infection sepsis formation which leads to tissue damage skin infection etc. Traditional way to use plant and its parts for therapeutic purpose by keeping this theme in mine is used for plants and checks its activity against *S aureus* bacteria which give positive result that is. Plant powder does not allowed to growth of *S aureus* bacteria around itself which are in listed below *Conscora diffusa*, *Acmella radicans*, *Cocculus Hirsutus*, *Caesalpinia bonduc* among four plant *Caesalpinia bonduc* and *Cocculus Hirsutus* is more efficient against *S aureus*. The action of *S aureus* Bacteria is suppressed by medicinal plant.

## Introduction

Life on Earth started tens of thousands and thousands of years ago. In residing things, microorganisms, flowers, etc. are at the leading edge of the formation process. The earth become made from water, air, soil, and lots of dense inexperienced forests. Depending at the availability of air, water, soil, etc., the sort of woodland is created. The jungle environment become created. By nature, each tree is located to have a practical formation. Each plant has a unique significance. Each plant has medicinal properties. From time immemorial, our ancestors have used diverse flowers to deal with many illnesses and therapy illnesses. Some flowers have medicinal properties, even as others have poisonous elements. Every plant is multifaceted. Useful in lots of illnesses. The leaves, flowers, stems, roots, fruits, bark, etc. of the plant have medicinal properties. I, thinking about this imperative idea of the ancestors, studied the impact of using positive flowers on microorganism and illnesses resulting from them. To do this, I accrued a few flowers from the Melghat woodland and experimented with a bacterium referred to as *S aureus*. *S aureus* Bacteria are the purpose of the contamination however whilst the contamination will become severe, it may purpose diarrhea, intestinal ulcers, vomiting and may be deadly if now no longer dealt with in time.

According to the World Health Organization (WHO), a medicinal plant is any plant that contains substances that can be used by one or more organs. Synthesis of useful drugs (1). Medicinal vegetation incorporate biologically lively chemical materials together with saponins, tannins, critical oils, flavonoids, alkaloids and different chemicals that have healing properties (2). Plants are a rich supply of secondary metabolites with appealing organic actions. In general, those secondary metabolites are a key supply with a number of structural preparations and properties (3). Natural merchandise from microbial reasssets were the predominant aid of antibiotics, however with the growing popularity of natural remedy as an opportunity shape of fitness care, the screening of medicinal vegetation for energetic compounds has end up very vital due to the fact those can also additionally offer as gifted reasssets of talented sources of book antibiotic prototypes (4). It has been proven that during vitro screening strategies should offer the desired initial observations vital to pick crude plant extracts with probably beneficial homes for added chemical and pharmacological investigations (5). Traditionally, herbal and plant products have been considered non-toxic and have been used by the general public and traditional physicians around the world to treat a variety of ailments. The active ingredients in herbal extracts are chemicals associated with those found in refined pharmaceuticals and have the potential to cause serious unwanted effects. Although literature documents document toxicity as a result of herbal use, in many cases the potential toxicity of herbs and herbal products is undocumented (6). In some countries, such as Taiwan and Nigeria, you can buy herbs from temples, night markets, street vendors, herbal stores, neighbors or relatives, and traditional medicine practitioners. Also, there is limited information on the relative safety of herbal medicines compared to synthetic treatments (7). There is no standard or metered capacity and the capacity used is large and difficult to handle. Natural products do not have clear dose and effect data, but unlike purified synthetic drugs based on single-molecule substances derived from nature, they also have the advantage of including many specific molecular principles in their natural state that have various effects on human physiology and biochemical systems There is Product (8). As many infectious agents become resistant to synthetic drugs, researching new sources of antibiotics is a common task for research institutes, pharmaceutical companies, and academia (9). Infectious diseases are the world's greatest threat to human health, taking nearly 50,000 lives every day (10). The situation is further complicated by the rapid development of multi-drug resistance of microorganisms to available antimicrobials. The situation is further complicated by the rapid development of multi-drug resistance of microorganisms to available antimicrobials.

The main advantage of the plant is that it is still the most effective and inexpensive drug substitute. Due to their pharmacological properties, topical use of natural plants as first-line treatment is relatively common in Asia, Latin America and Africa (11). Accordingly, natural antioxidants, antibacterial agents, cytotoxic agents, antiviral agents, bactericides and nutrients have recently gained popularity, and their use and encouraging images are spreading among consumers.

## Method and Materials

### Plant materials

*Conscora diffusa*, *Acmella radicans*, *Cocculus Hirsutus*, *Caesalpinia bonduc*. Was collected from Melghat Amravati, Maharashtra. The collected plant materials were washed under tap water, dried in shade and then whole plant of *Conscora diffusa*, *Acmella radicans*, *Cocculus Hirsutus*, *Caesalpinia bonduc* and stem and leaves of *Conscora diffusa*, *Acmella radicans*, *Cocculus Hirsutus*, *Caesalpinia bonduc* homogenized to fine powder and stored in airtight bottles. And convert into Air dried powdered material.

### Microorganisms

The microorganisms were obtained from government water testing laboratory daryapur, Amravati. The bacterial strains were grown in the nutrient broth and maintained at room temperature Nutrient agar slants at 4°C. Antibacterial activity was carried out against Gram negative bacteria such as *S aureus*.

### Glass wares cleaning

All glassware was immersed in a solution of potassium dichromate (100 g potassium dichromate followed by 500 ml concentrated sulfuric acid slowly added to 1 liter of distilled water) for approximately 12 hours and washed with tap water. Finally, rinse with distilled water and dry before use.

### Sterilization

Glassware was sterilized at 180° C. for 1 hour in a hot air oven. All media were autoclaved at 15 Lbs of pressure for 15 minutes. Chemicals all chemicals and media used in this work were purchased from Himedia, Ranbaxy and Sigma Limited and distilled water was used throughout the study.

### Preparations

- **Preparation of fine powder:** - First we take Seventeen medicinal plant and will dry it and made a fine powder. Leading we take a Seventeen medicinal plant. At that point this plant leaf washed with D.W. To discard the undesirable materials at that point air-dried and dry in underneath sunlight. The temperature of sunlight is 42-43°C for 48 hrs after which we scour or crush this spices. At that point we found a fine powder. At that point we disinfect this powder in warm air oven and store in sterile container.
- **Preparation of antibiotic tablet:** - We use the sterile fine powder of Seventeen medicinal plant and distilled water. Make the tablet like structured disc for the antibiotic test.

## Procedure

The leaves of the vegetation accumulated from the woodland had been washed clean. They had been then sterilized and wiped dry. Prepared a great powder of all of the dried and dried organs withinside the shade. Now placed the organized powder in an hermetic container. All forms of powder had been packed in exceptional containers. The *S. aureus* microorganism had been then collected from the pus sample withinside the laboratory, and given an appropriate environment, nutrition, etc. Disinfect all glassware in autoclave. Petri plates had been sterilized in an autoclave. Disinfected the use of alcohol every time. Prepare *S. aureus* isolation medium on nutrient agar as in line with composition and sterilize in autoclave. Allow to chill and pour right into a sterilized Petri plate permit to solidify.

After solidification for the *S. aureus* bacterial tradition which became organized through the use of nutrient broth. After pouring bacterial tradition right into a Petri plate go away the Petri plate undisturbed for short while after which discard the already port tradition from the Petri plate. I positioned the entire organized vegetation powders disc for the antibiotic test.

In the center of the plate with the assist of powder strip, now all of the plates are saved withinside the incubator for regular temperature. Two days later, 48 hours later, at a temperature of 38°C, bacterial boom became determined anywhere withinside the plate, however a clean circle became shaped across the plant powder.

## Result and Discussion.

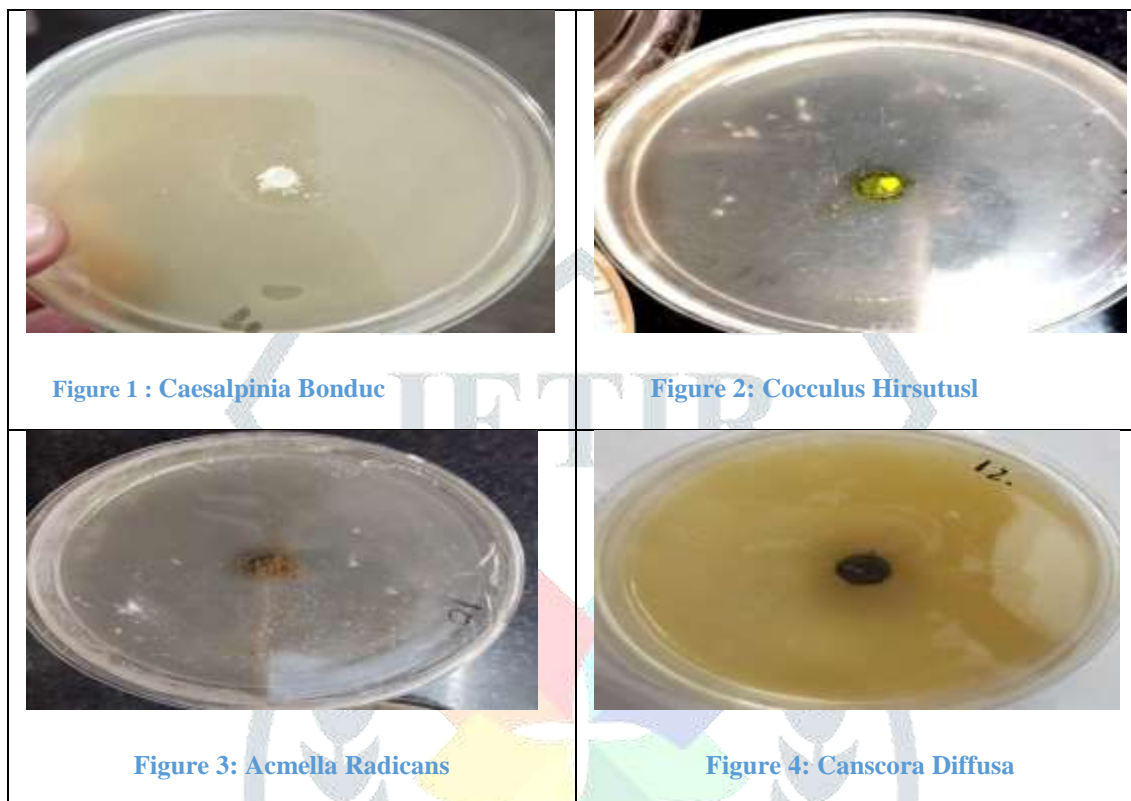
When we look at the interaction between *S. aureus* bacteria and the powder of Seventeen medicinal plants, out of this plant only four plants appears that the growth of *S. aureus* bacteria was completely stunted. When the four plant powders were placed in four different petri plates right in the middle of the nutrient media, a curl appeared around each powder. That curl was very clear. All four curls were more or less the same size. That ring is the inhibition zone. The diameters of the inhibition zones in each flat are written in ascending order, respectively;

Name of plants	Zone observer
<i>Conscora Diffusa</i>	0.6 cm
<i>Acmella Radicans</i>	1.3 cm
<i>Coculus Hirsutus</i>	1.4 cm
<i>Caeselpenia Bonduc</i>	1.6cm

Table 1.1 results of given plants



The implication is that the biochemical component in all four of the above plants had a negative effect on the growth of *S. aureus* bacteria. The goal was to stop the growth of bacteria. *S. Aureus* bacteria are Gram-positive and can cause serious infections. The *S. aureus* bacterium enters the body through wounds and ulcers and causes infection and pus. As a result, the wound may swell and the limbs may fail. The *S. aureus* bacterium infects and damages the epithelial membrane. If the infection gets out of control, gangrene can occur in the affected organ.



**Observation of Effective Medicinal Plants against *S. Aureus* Bacteria**

The maximum sensitivity of *S. aureus* can be associated with the shape of the cell wall, probably cell properly shape and external members [12]. By implementing all the four herbs mentioned above as medicines, we can prevent the infection of *S. aureus* bacteria. The implication is that if animals or human beings have been injured or infected from the wound, then using these herbs we can heal the wound completely, preventing the infection. Naturally, it does not have any adverse effects. In many research, *S. aureus* sensitive many extracts from the three study plants have similar sensitivities, It transforms these microorganisms into a variety of plant extracts reported by different researchers [13, 14, 15]. In this study, *S. aureus* showed more sensitivity to *Caesalpinia Bonduc* 1.6 cm plant However; the *Conscora diffusa* 0.6 cm, *Acmella radicans* 1.3 cm and *Cocculus hirsutus* 1.4 cm. plants could less inhibit the growth of *S. aureus*. Abouhosseini Tabari et al. [16], mint essence had a vulnerable impact on each Gram-negative and positive bacteria (*E. coli* and *S. aureus*, respectively)

## Conclusion

On performing the interaction between collected plant sample against *S aureus* bacteria we conclude that bacterial growth get arrested means growth not observe. The obtained innovation zone provides the conclusion about the efficiency of plant that means medicinal strength. Comparative study gives the information depreciated as below. *Conscora diffusa* 0.6 cm. *Acmella radicans* 1.3 cm. *Cocculus hirsutus* 1.4 cm. *Caesalpinia Bonduc* 1.6 cm. This four medicinal plant are used for effective result against the *S aureus* bacterial infection. In that final conclusion is that *Caesalpinia Bonduc* and *Cocculus hirsutus* both are more effective than remaining 2 this plant used to treat the wounds of cattle to avoid infection and loss of health.

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