In the present study the effect of different extracts of turmeric (*Curcuma longa*) varieties on gram positive and gram negative bacteria were studied. This research work was also includes a detailed study on MRSA. In view of the findings presented so far and also based on the available knowledge, the following conclusions were drawn.

- Among *Staphylococcus aureus*, MSSA was more prevalent than MRSA in clinical samples.
- The present study reports a fairly high prevalence (34.84%) of MRSA infections in Western Uttar Pradesh, India.
- MRSA was isolated maximum from pus as compared to other clinical samples.
- MRSA infections were more predominant in the 60 years and above age group and were documented to be the least in 0 to 15 years age group.
- In our study, males were more prone to acquire MRSA infections as compared to females.
- Among MRSA isolates, CA-MRSA was more prevalent than HA-MRSA.
- It was observed that the percentage of inducible Clindamycin resistant isolates were higher among MRSA (21.95%) as compared to MSSA (6.90%).
- Detection of *mecA* gene by polymerase chain reaction is considered as the best method to detect MRSA. However, Cefoxitin Disc Diffusion method which is a simple, cost effective method has shown high sensitivity and specificity and helps in the early diagnosis, proper treatment and management of MRSA infections. Thus, it can be used as an accurate surrogate marker in routine susceptibility test to detect MRSA.
• There was a marked difference between antibiogram of MRSA and MSSA isolates.

• The MRSA isolates were more resistant to Cotrimoxazole (86.1%), Ciprofloxacin (84.55%) and Erythromycin (79.67%).

• All the MRSA isolates were sensitive to Vancomycin and Linezolid.

• In PCR primer set 1 (5'-AAATCGATGGTAAGGTTGGC-3' and 5'-AGTTCTGCAGTACCGGATTTTGCA-3') was more appropriate than primer set 2 ((51–TAGAAATGACTGAACGTCCG-3' and 51- TTGCGATCAAATGTTACCCGTAG-3') for the detection of MRSA.

• All the Curcuma longa varieties (C.longa TCP 129, C.longa NYST-II, C.longa RH7/90, C.longa NYST-24 and C.longa sughandham.) possess antibacterial activity against MRSA. However, heated aqueous extract of Curcuma longa varieties did not show any antibacterial activity.

• Ethanol extract of Curcuma longa varieties have shown more antibacterial activity than aqueous unheated extract.

• Extractions Curcuma longa were active against only gram positive bacteria, it did not show any antibacterial activity against gram negative bacteria.

• Methicillin Resistant Staphylococcus aureus is a major nosocomial pathogen with frequent resistance, leading to the overuse of antibiotics in therapy.

• The accurate and early determination of Methicillin resistance Staphylococcus aureus is of key importance in the prognosis of infections.

• Careful use of existing antibiotics and regular monitoring of strains circulating in particular hospitals at regular time intervals is essential to
tackle the spread of highly resistant Staphylococcus strains and also to predict and prevent the emergence of even more strains.

- The development of new classes of compounds against MRSA is the necessary step to control multi-drug resistant *Staphylococcus aureus* especially from natural source. Phytochemicals from medicinal plants showing antimicrobial activities have the potential of filling this need, because their structures are different from those of the antibiotics and their mode of actions may very likely differ.

- Thus, consistent surveillance of hospital associated infections and formulation of definite antibiotic policy may be helpful in reducing the incidence of MRSA infections.

- Potent anti-Staphylococcus efficacy of ethanol extracts of *Curcuma longa* varieties are of great interest and require further investigation. These preliminary studies are highly interesting as they open new avenues for further studies which would support the validation of the traditional use of these plants in the treatment of MRSA infections.

- This study reveals the potential medicinal use of *Curcuma longa* (turmeric) as an antibacterial agent. Curcumin has been demonstrated to be safe in many studies and well tolerated by human body. *Curcuma longa* may provide a valuable tool for the development of a therapeutic agent against Methicillin Resistant *Staphylococcus aureus*. However, further standardization of these extracts needs to be done in order to use it as an effective economical antibiotic.