CONCLUSION

Prevalent utilization of antibiotics has undoubtedly caused the epidemics of antimicrobial resistance worldwide. Regrettably, resistance in some species has developed to the level that no clinically available treatment is effective. Preservation and control strategies will require the application of epidemiological and behavioural approaches, as well as the research technologies aimed at the basic mechanisms of drug resistance.

In the view of this aspect the tendency of acquisition of drug resistance was observed in *E. coli* amongst major age group 21-30 in females. The wide spectrum of resistance amongst the considered uroisolates was observed for ampicillin to third generation cephalosporins like cefuroxime. The inadequate and non prescription dosage of these antibiotics used during self medication in developing countries is likely to be the factor contributing to the development of resistant strains.

The genetic characterization of antimicrobial resistance genes as well as their location and diversity is important in identifying factors involved in resistance. Plasmid mediated ESBLs especially Amp C beta lactamases represent a new threat science they confer resistance to 3GC’s. Horizontal gene transfer detected in MAR uroisolates was found to be an important cause of spread of antibiotic resistance amongst the diverse group of Enterobacteriaceae.

Knowledge of the molecular mechanisms of antibiotic resistance is essential for developing new approaches in the development of inhibitors of resistance enzymes. These inhibitors can
be administered as co-drugs to with the antibiotics thereby blocking resistance and rescuing the antimicrobial activity of the drugs.

Strategies could be developed to target virulence factors of pathogens instead of whole bacteria. Statistical analysis has revailed that the coexistence of virulence factors like serum resistance, haemagglutination production, hemolysin production, colicin production etc. was found to be there in uroisolates considered for present investigations.

Plants are the potential sources of medicines science ancient time. Screening for antimicrobial and enzyme inhibitor activity was very significant. Insilico studies performed with the model of Gallic acid which is the major component of _Terminalia chebula_ and Amp C beta lactamases enzyme have shown the possibility of Gallic acid to be a potent enzyme inhibitor. This study was supported by wet lab detection of Gallic acid in aqueous extract of _Terminalia chebula_ giving enzyme inhibition activity in presence of amoxicillin analysed by HPLC with the selected organism under our lab conditions.

Such type of phytochemical screening for potent putative biomolecules is very promising approach to tackle the problem of antibiotic resistance. India has got a very rich floral heritage of medicinal plants. These medicinal plants can be the money lending crops for the farmers and the indigenous flora could be conserved as an attempt of nature conservation.

The result obtained by this study could be utilized as the way to come up the medico social problem of drug resistance considering various regulatory, scientific, technological, economical and social challenges. The regulatory issues like clinical compliance and acceptance of this approach in open market will take many years. The
social awareness and education about the validity and absolute need for the approach is very essential.

Thus come back to nature as well explained below:

Finally,

- 2000 B.C. – Here, eat this root
- 1000 A.D. – That root is heathen. Here, say this prayer.
- 1850 A.D. – That prayer is superstition. Here, drink this potion.
- 1920 A.D. – That potion is snake oil. Here, swallow this pill.
- 1945 A.D. – That pill is ineffective. Here, take this penicillin.
- 1955 A.D. – Oops...bugs mutated. Here, take this tetracycline.
- 1960-1999 – 39 more "oops"...Here, take this more powerful antibiotic.
- 2000 A.D. – The bugs have won! Here, eat this root.
FUTURE PERSPECTIVE

✓ Isolation, identification and characterization of putative phytochemical molecules.

✓ Formulation study of related herbal extract or molecule as a topical dosage form in order to avoid the pharmacodynamic consequences of the drug molecules.

✓ Analysis of phytochemical component as potent enzyme inhibitor.

✓ Application of combinational therapy consisting of use of phage therapy, allopathic and Ayurvedic medicine combination etc.

✓ Designing of the easy and fast diagnostic tool using the genetic determinants of the pathogenic organisms.