REVIEW OF LITERATURE

1. L.V. Buwa et al [2006] carried out antibacterial and antifungal activity of traditional medicinal plants used against venereal diseases in South Africa on an Aqueous, ethanolic and ethyl acetate extracts. The aqueous extracts of *Gunnera perpensa* and *Harpephyllum caffrum* were most active against all the tested bacteria. In antifungal screening, good activity was shown by the ethanolic extracts of *Bersama lucens* and *Harpephyllum caffrum*. Only in the case of *Harpephyllum caffrum* did aqueous extracts have activity against *Candida albicans*.

2. R. C. Jagessar et al [2007] reported antibacterial and antifungal activity of leaf extracts of *Luffa operculata*, vs *Peltophorum pterocarpum*, against *Candida albicans*, *Staphylococcus aureus* and *Escherichia coli* on a hexane, dichloromethane, ethyl acetate and ethanol. The solvents had no effect on the microorganisms whereas ampicillin and nystatin inhibited microbial growth. All three plants showed antimicrobial inhibitory activity at 0.18 mg/10mL plate of medium. Activity was also most prominent with the ethanol extracts and least or negligible with the hexane. This study suggests that the ethanol and ethyl acetate extracts of *Luffa operculata* and *Peltophorum pterocarpum* can be used as herbal medicines in the control of *E. coli* and *S. aureus* induced medical diseases.

3. B. Mahesh et al [2008] carried out antimicrobial activity of Some Important Medicinal Plant against Plant and Human Pathogens on the methanol leaf extracts of *Acacia nilotica*, *Sida cordifolia*, *Tinospora cordifolia*, *Withania somnifera* and *Ziziphus mauritiana* showed significant antibacterial activity against *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas fluorescens*, *Staphylococcus aureus* and *Xanthomonas axonopodis* and antifungal activity against *Aspergillus flavus*, *Dreschlera turcica* and *Fusarium verticillioides* when compare to leaf extract showed highest antibacterial activity against antifungal.

4. C. Delahaye et al [2009] patented out antibacterial and antifungal analysis of crude extracts from the leaves of *Callistemon viminalis* on a Methanol, hexane and aqueous extracts of *Callistemon viminalis* were tested against eight common bacteria and a single fungus of medical importance using a quantitative agar well diffusion test.
and tube dilution assay. All plant extracts showed antimicrobial activities against the selected microorganisms; the methanol extracts were most effective. The aqueous extract on the other hand, was very effective as a bactericidal agent against the intestinal pathogens. These results support the ethno medicinal claim that *C. viminalis* is an effective treatment for bacterial causes of intestinal illnesses.

5. G.Sashikala Devi et al [2009] carried out Studies on the antibacterial and antifungal activities of the ethanolic extracts of *Luffa Cylindrica* (Linn) were ethanolic extract was found to be the most effective and showed antibacterial and antifungal activity against the entire organism tested. The Zone of Inhibition (mm) at various concentrations of ethanolic extract of *Luffa cylindrica* was found to the range 50 mg/ml to150 mg/ml on tested all the test organisms.

6. S. Sasidharan et al [2009] reported out Phytochemical and antimicrobial activity of *Swietenia mahagoni* crude methanolic seed extract against Gram-positive, Gram-negative, and fungus strains was evaluated based on the inhibition zone using disc diffusion assay, minimal inhibition concentration (MIC). The demonstrated qualitative phytochemical tests exhibited the presences of common phytocompounds including alkaloids, terpenoids, antraquinones, cardiacglycosides, saponins, and volatile oils as major active constituents. The SMCM seed extract had inhibitory effects on the growth of *Candida albicans*, *Staphylococcus aureus*, *Pseudomonas aeroginosa*, *Streptococcus faecalis* and *Proteus mirabillase* and illustrated MIC values ranging from 25 mg/ml to 50 mg/ml.

7. N. Toudert et al [2009] carried out antimicrobial activity of the butanolic and methanolic extracts of *Ampelodesma mauritianica* were examined for antibacterial and antifungal activity in vitro using the disc diffusion method. Activity against five bacterial strains (gram positive bacteria and gram negative bacteria) and one fungal strain is discussed. Phytochemical screening shows that this plant is particularly rich in flavonoids and saponins which might be responsible for its antimicrobial activity.

8. G.S. Chakraborthy et al [2009] reported out antibacterial and antifungal studies of *Mirabilus jalap* leaf extracts on five different crude extracts: petroleum ether, chloroform, ethyl ether, ethanol and aqueous extract of *Mirabilus jalap* have been
studied for both in vitro antibacterial and antifungal activities. The different extracts showed remarkable inhibitory action against various gram positive and gram negative bacteria and two fungal species. Antimicrobial activity was detected by observing the growth response of different organisms to the methanolic extract. It was generally based on the inhibition of growth of microorganisms which were measured with a desired concentration of the plant extract of Mirabilis jalap to be examined with the standard concentration preparation. Positive antifungal activity was observed with the methanolic extract against fungal organism *Candida albicans*.

9. K. Girija et al [2010] carried out Evaluation of antimicrobial activity of various bark extracts of *Bombax Malabaricum* on successive extracts (petroleum ether, chloroform, acetone, alcohol, water) of bark were carried out against two Gram positive bacteria — *Bacillus Subtilis* and *Staphylococcus aureus* and two Gram negative bacteria — *Escherichia coli*, *Pseudomonas aeruginosa*. The antifungal activity of the ex-tracts was evaluated on two common pathogenic fungi — *Aspergillus niger* and *Candida albicans*. The results showed that the Petroleum ether and chloroform extracts showed no activity while the alcoholic extract showed more activity than the acetone and aqueous extracts. The highest inhibitory activity was determined for alcoholic extract against *E.coli*. On the other hand, the weakest inhibitory activity was determined against *P. aeruginosa* for aqueous extract.

10. R. Vijaya bharathi et al [2010] reported antibacterial and antifungal screening on various leaf extracts of *Barringtonia acutangula* on the n-hexane, chloroform, ethyl acetate and ethanol activity against gram-positive (*Staphylococcus aureus, Enterobacteriaceae, Coagulase staphylococci*) and gram-negative bacteria (*Escherichia coli, Klebsiella, Citrobacter, Aceneto bacter, Pseudomonas, Salmonella typhi and Salmonella paraty-phi*) using Minimum Inhibitory Concentration (MIC) and zone of inhibition by Agar Disc Diffusion method. The results of the preliminary investigation revealed the presence of terpenoids, steroids, tannins, saponins, flavanoids and glycosides. Among the crude extracts, n-Hexane extract showed good antibacterial activity against all tested organisms followed by chloroform (MIC = 100 μg/ml), Ethyl acetate (MIC = 100 μg/ml), ethanol and aqueous ex-tracts (MIC = 166.67 μg/ml). Results on the zone of inhibition (mm) revealed n-Hexane extract
showed the maximum antibacterial potential followed by ethyl acetate, ethanol, aqueous and chloroform.

11. G.Gunaselvi et al [2010] reported antibacterial and antifungal activity of various leaves extracts of *Hardwickia binata roxb* (*Caesalpinaceae*) on a petroleum ether, chloroform and ethanolic leaves extracts of *Hardwickia binataroxb* (*Caesalpinaceae*). Among the three extracts the ethanolic extract of *Hardwickia binata roxb* showed the highest range of activity against all tested human pathogens. *S.pneumonia, A. niger, A. flavus, C. albicans* and *A.fumigatus* were found to be susceptible forming highest zone of inhibition diameter of 28-31mm at concentration of 100mg/ml, suggesting that *Hardwickia binata roxb* was strongly inhibitory towards these organisms. These results indicate that *Hardwickia binata roxb* possessed potential Antibacterial and Anti fungal activities.

12. J. Noor et al [2010] carried out antimicrobial screening of some medicinal plants of pakistan on methanolic extracts of *thuja occidentalis, vernonia anthelmintica, dryopteris chrysocoma* and *trachyspermum ammi* were tested in vitro for their antibacterial and antifungal activities. Antibacterial study performed against six bacteria viz., *Escherichia coli, Citrobacter, Shigella flexenari, Yersinia aldovae, Staphylococcus aureus* and *Pseudomonas aeruginosa* indicated that has potent activity against all microorganisms. The antifungal activity of these extracts was performed against six fungi, viz., *Saccharomyces cereviciae, Aspergillus parasiticus, Trichophyton rubrum, Macrophomina, Fusarium solani* and *Candida albicans*. The extracts showed significant results against different fungal strains.

13. Akilandeswari .S et.al [2010] carried out antibacterial and antifungal activity studies for leaf extracts of *Sida acuta L*. Two common solvents i.e chloroform and ethanol (35%) were used successively for extraction of active principles from the dried powdered leaves. The Phytochemical tests of extracts revealed the Presence of Carbohydrates, Alkaloids, Phytosterols, Saponins and fixed Oils. The antimicrobial screening was done with two Gram +ve (*Staphylococcus aureus* NCIM 2073, *Bacillus subtilis* NCIM 2063) and two Gram –ve (*E.coli* NCIM2065 *Pseudomonas aeruginosa* NCIM 2036) bacteria and fungi (*Candida albicans* NCIM 3102, *Aspergillus niger*
NCIM 1053) as test microorganisms. All the three microorganisms were markedly affected by both the extracts under study.

14. R. Mahajan et al [2010] carried out the ethno botanical significance and potential of various extracts of *Blumea lacera* was investigated. The plant was found to be used in many folk preparations. Antimicrobial potential of the plant was evaluated against three bacterial and one fungal species. Two different solvents - water and methanol were used for extraction purposes. Among the different extracts investigated, water extract of *Blumea lacera* was found to possess a broad spectrum of antimicrobial activity against studied bacterial strains. For the antifungal activity, both extracts of *Blumea lacera* showed promising results.

15. N.R. Bhalodia et al [2011] reported antibacterial and antifungal activity from Flower Extracts of Cassia fistula Lin the present study, the microbial activity of hydro alcohol and chloroform extracts of flowers of *Cassia fistula Linn.* (An ethno medicinal plant) were evaluated. The extracts showed broad spectrum of inhibition by showing antibacterial effect for both Gram positive and Gram negative human pathogen bacterial strains. Crude extracts of Cassia fistula exhibited moderate to strong activity against most of the bacteria tested. The tested bacterial strains were *S. aureus, S. pyogenes, E. coli, P. aeruginosa, and fungal strains* were *A. niger, A. clavatus, C. albicans.* The antibacterial potential of the extracts were found to be dose dependent.

16. W. Islam et al. [2010] carried out antibacterial and antifungal Activity of *Solanum torvum* on Leaves, stem, roots and inflorescence of *Solanum torvum Sw.* were extracted in two different organic solvents (chloroform & methanol). Antibacterial and antifungal effects of the extracts were tested on fifteen (six Gram positive & nine Gram negative) human pathogenic bacteria and on eight pathogenic fungi. Methanolic extracts of roots of *S. torvum* exhibited promising antibacterial and antifungal effects on all organisms tested in comparison with that observed in the leaves, stems and inflorescence extracts. The toxicity of the extracts was in the following order; root>stem>inflorescence>leaf. The minimum inhibitory concentration (MIC) values of methanolic extract of roots of *S. torvum* were in the range between 64-128 μg mL⁻¹.
Chloroform extracts of roots were more toxic (LC50 35.4629 ppm) than other extracts analyzed in Brine shrimp test. In conclusion, S. torvum appears to be an attractive material for the development of antimicrobial drugs and environment friendly

17. Shibumon George et al. [2010] carried out antimicrobial screening studies for identifying a plant with potential antimicrobial activity. In the present study, different extracts of fruits of Flacourtia inermis Roxb were used for studying their antibacterial property against multidrug resistant bacterial strains. Methods: The antibacterial activity and antibiotic sensitivity comparison of fruit extracts were carried out by disc diffusion method. Results: The study revealed that the acetonic extract of Flacourtia inermis is very powerful to inhibit the growth of tested strains. Among the sensitive strains, Serratia marcescens showed highest susceptibility followed by Staphylococcus aureus, Pseudomonas aeruginosa, Klebsiella pneumoniae and Escherichia coli. Antibiotic sensitivity study revealed that the tested bacteria were completely sensitive to the acetonic extract of Flacourtia inermis even though they were multidrug resistant. Conclusion: The acetonic extract of Flacourtia inermis possesses a broad spectrum of antibacterial agent active against multidrug resistant bac-terial strains.

18. Didem fiöhretolu et al. [2007] reported antibacterial and antifungal activities of Quercus macranthera subsp. syspirensis, Q. cerris, Q. pubescens, and Q.coccifera were investigated using broth microdilution method by measuring minimum inhibitory concentrations (MICs) of the different extracts. Antimicrobial activity was determined against two Gram-positive and two Gram-negative bacteria and for three fungi. All of the extracts possessed more antifungal activity than antibacterial activity in general. Almost all extracts were found to be active against the tested Candida strains. In particular, n-BuOH extract of Q. coccifera exhibited significant activity against C. parapsilosis, with a MIC value of 4.8 μg/ml.

19. Gupta raj Narayan et al. [2010] reported the antibacterial activity of ethanol and aqueous extracts of the leave of Achryanthesaspera,, Alternanthera pungens, Cynodon dactylon was investigated against Bacillus subtilis, staphylococcus and pseudomonas aeruginosa using agar diffusion technique
20. Ranajit K. Banerjee et al [2002] carried out Biological activities and medicinal properties of neem (Azadirachta indica) This review givesa bird’s eye view mainly on the biological activities of some of the neem compounds isolated, pharmacological actions of the neem extracts, clinical studies and plausible medicinal applications of neem alongwith their safety evaluation.

21. Senthamarai R.S et.al [2010] carried out. Antibacterial and antifungal activity studies for leaf extracts of Sida acuta L. Two common solvents i.e chloroform and ethanol (35%) were used successively for extraction of active principles from the dried powdered leaves. The Phytochemical tests of extracts revealed the Presence of Carbohydrates, Alkaloids, Phytosterols, Saponins and fixed Oils. The antimicrobial screening was done with two Gram +ve (Staphylococcus aureus NCIM 2073, Bacillus subtilis NCIM 2063) and two Gram –ve (E.coli NCIM2065 Pseudomonas aeruginosa NCIM 2036) bacteria and fungi (Candida albicans NCIM 3102, Aspergillus niger NCIM 1053) as test microorganisms. All the three microorganisms were markedly affected by both the extracts under study.

22. Bashir Ahmad et.al [2010] carried out The antibacterial, antifungal and insecticidal activities of the crude extract of Polygonum persicaria, Rumex hastatus, Rumex dentatus, Rumex nepalensis, Polygonum plebejum and Rheum australe have been studied. Six bacterial species were used, of which Citrobacter frundii, Escherichia coli, Enterobacter aerogenes and Staphylococcus aureus were the most susceptible bacterial species to crude extract with MICs 16, 5.0, 25 and 0.156 mg/ml, respectively. Among the tested fungal species Fusarium solani, Aspergillus flavus and Aspergillus niger were more susceptible to crude extracts with MICs 0.75, 2.15, and 1.75 μg/ml, respectively. The crude extracts of R. dentatus and R. nepalensis show significant insecticidal activity against Sitophilus oryzae; P. persicaria and P. plebejum show significant insecticidal activities against Tribolium castaneum, respectively. The above selected plants were shown by in vitro assays to be a potential source for natural antifungal, antibacterial and insecticidal agents.

23. H.M. Kumara Swamya, V. Krishna a et al. [2007] reported the wound healing activity of the ethanol extract of the leaves of Embelia ribes. Ethanol extract of the
leaves of Embelia ribes Burm. (Myrsinaceae) and its isolated quinone compound embelin were screened for wound healing activity by excision, incision and dead space wound models on Swiss Albino Rats. Significant wound healing activity was observed in both ethanol crude extract (30 mg/ml) and the constituent treated groups. The wound healing effect was comparatively evaluated with the standard skin ointment Framycetin.

24. R.B Vijaya et al [2010] carried out Antibacterial and antifungal screening on various leaf extracts of Barringtonia acutangula on the n-hexane, chloroform, ethyl acetate and ethanol activity against gram-positive (Staphylococcus aureus, Entero cocci, Coagulase staphylococci) and gram-negative bacteria (Escherichia coli, Klebsiella, Citrobacter, Aceneto bacter, Pseudomonas, Salmonella typhi and Salmonella paraty-phi) using Minimum Inhibitory Concentration (MIC) and zone of inhibition by Agar Disc Diffusion method. The results of the preliminary investigation revealed the presence of terpenoids, steroids, tannins, saponins, flavanoids and glycosides. Among the crude extracts, n-Hexane extract showed good antibacterial activity against all tested organisms followed by chloroform (MIC = 100 μg/ml), Ethyl acetate (MIC = 100 μg/ml), ethanol and aqueous ex-tracts (MIC = 166.67 μg/ml). Results on the zone of inhibition (mm) revealed n-Hexane extract showed the maxi-mum antibacterial potential followed by ethyl acetate, ethanol, aqueous and chloroform.

25. Noor. J et al [2010] reported antimicrobial screening of some medicinal plants of pakistan on methanolic extracts of thuja occidentalis, vernonia anthelmintica, dryopteris chrysocoma and trachyspermum ammi were tested in vitro for their antibacterial and antifungal activities. Antibacterial study performed against six bacteria viz., Escherichia coli, Citrobacter, Shigellaflexenari, Yersinia aldovae, Staphylococcus aureus and Pseudomonas aeruginosa indicated that has potent activity against all microorganisms. The antifungal activity of these extracts was performed against six fungi, viz., Saccharomyces cereviciae, Aspergillus parasiticus, Trichophyton rubrum, Macrophomina, Fusarium solani and Candida albicans. The extracts showed significant results against different fungal strains.