REVIEW OF LITERATURE
REVIEW OF LITERATURE

The wide use and abuse of antibiotics lead to the emergence of multi drug resistant bacterial and fungal strains. The alternate to antibiotics is the synthesis of potent drugs from the biologically active antibacterial compounds of the plants. The spices which are the normal ingredients of our routine food preparations provide protection to a certain extent against pathogens.

The screening of the antimicrobial activity of plants have been started since 1941. The use of plant extracts for controlling microbes had been a major option world wide (Abo et al., 1999; Agaoglu, 1999; Alashahi et al; 1999; Ali et al., 2001). Most of the intermediate metabolites produced by plants possess antibiotic properties. These metabolites are mainly phenolics (Kujala et al., 2000; Fico et al., 2000), tannins (Hou et al., 2001; Mikage and Idaka 2000) steroids (Finsterbusch et al., 1999) and other compounds. These compounds areconcentrated in different plant parts like leaf (Ali et al., 1999), roots (Mekonnen et al., 1999), floral parts (Alvarez - Castellanos et al, 2001) or stem (Khan et al, 2001). These compounds are extracted with polar and non polar solvents. According to Fenical et al., (1981) and Faulkner (1983), the antimicrobial activity of a plant depends upon the bioactive compounds present in them. It was reported that the aqueous and methanolic extract of the plants are the potential source of antimicrobial, antiviral and anti tumoural agents
(Conang et al., 1995, Vlietinccs et al., 1995) and hence, they are used in allopathic medicines.

The antimicrobial activity of 81 plant extracts against six bacterial strains was studied by Rios et al., (1987) and they reported that 30 plants showed better activity against the tested organisms. Almag boul et al., (1988) investigated the antimicrobial effect of fifteen plant extract and reported their inhibitory effects against different bacterial genera such as *Staphylococcus aureus, Bacillus subtilis, Escherichia coli* and *Pseudomonas aeruginosa*. Alade and Irobi (1993) reported that the bactericidal effect of ethanolic extract of *Acalypha wilkeniana* leaves was found to be effective. Irobi and Banso (1994) investigated the effect of *Anisomelaus malabarica* extract against various microorganisms and observed the inhibitory activity against *aureus*. Invitro evaluation of extracts of *Evolvalus alsinoides* against bacteriae (*E-coli, Salmonella citreus, Proteus vulgaris, aeruginosa and Klebsiella sp*) and fungi (*Aspergillus niger, Mucor sp and Candida albicans*) revealed that the extract is moderate or less active against bacteria (Purohit et al., 1995). Kirtikar and Basu (1985) reported that the extract of *Origanum majorana* is used to treat fever, leucoderma, inflammation and heart diseases. Antibacterial screening of *Origanum majorana* was studied by Ben et al., (2001), Farooqa and Sriramu (2004).

The extract of leaves of *Origanum* is used to treat asthma, hysteria and paralysis and is proved to be an effective herbal protectant against a wide spectrum of pathogenic bacteria and fungi (Leeja and Thoppil, 2007). Gnan and
Demello (1998) studied the antimicrobial activity of three Brazilian Medicinal plants (*Allium sativum, Commelina bengalensis, Psidium guajava*) and they indicated that the *Psidium* leaf extract is a new source of antimicrobial agent against *S. aureus*. Ramesh, et al., (2001) noticed high inhibitory activity of *Bridelia crenulata* (chloroform: methanol extract (1:1)) against *E. coli*, *Klebsiella pneumoniae* and *P. aeruginosa* which cause urinary tract infections. The antimicrobial activity of crude ethanolic extracts of sixteen Sibirian plants were tested against *Bacillus cereus*, *E. coli*, *S. aureus*, *P. aeruginosa* and *Candida albicans* by Kokosha et al., (2002). Of these, twelve plants exhibited antimicrobial activities and the most active antimicrobial plants were *Berginia crassiflia*, *Chelidonium majus, Rhaponticum carth amoides, Sanguisorba officinalis* and *Tussilago farfara*.

Antimicrobial activity of *Allium sativum* on some pathogenic bacteria was studied by Elizabeth (2001). The extract of *Myrtus communis* leaves showed higher antibacterial activity among the tested ethanolic extract of eleven plants against *S. aureus* (Mansouri, 1999). The antibacterial potency of *Senna alata* flower extract against *S. aureus, S. faecaliss, Micrococcus luteus, B. subtilis* and *Pseudomonas putida* were studied by Adedayo et al., (2001) Mansouri et al., (2001) reported that the crude extract of *Myrtus communis* inhibited the growth of ten bacterial strains except *Campylobacter jejuni*. Sheela and Kannan (2003) screened the antimicrobial activities of medicinal plants *Thespesia populnea, Centella asiatica* and *Solamen trilobatum*. Nair et al., (2005) examined the antibacterial activity of
nine plants against six bacterial strains namely, *Pseudomonas testosteroni*, *Salmonella epidermis*, *Proteus morganii*, *B. subtilis*, *Micrococcus flavus* and *K. pneumoniae*. They revealed that *Saphindus emarginatus* showed strong antibacterial activity against the tested pathogens.

*Euphorbia hirta* is widely used as medicine in west Africa. The dried plant has been used to treat asthma, bronchitis and the leaves are used in curing sore throat (Caius, 1986). *Phyllanthus niruri* has been known for its antiviral activity against Hepatitis B and is also employed to treat diabetes, dysentery, fever, flu, tumours, jaundice, vaginitis and dyspepsia (Duke *et al*., 1994). The antimicrobial activity of *E. hirta* and *P. niruri* were examined against seventeen human pathogenic bacteria. *E. hirta* showed maximum antibacterial activity and can be used to explore its bionatural products for the development of new pharmaceuticals (Anusha, 2005).

A comparison of antimicrobial activities of garlic, ginger, carrot and turmeric paste against *E. coli* was studied by Gupta and Ravishankar (2005). The antibacterial activity of ginger and turmeric on *E. coli*, *B. subtilis* and *S. aureus* were found to be greater than the unheated extract for both spices (Mausumi paul, *et al*., 2006). Samuthirakani, *et al*., (2006) investigated the antibacterial activity of *Elaeo dendron glaucum* against some gram positive and gram negative bacteria. The extracts of the leaf, stem and root are found to be possessing the antibacterial properties. Leaves of *Vitex negunda* have been investigated for their anti inflammatory activity by Telang *et al*., 1999, Dharma Siri, *et al*., 2003, Tandon
2005. *V. negunda* has a potential role as an adjuvant with standard anti-inflammatory therapy (Tandon, 2005). 

Invitro antimicrobial activity of the extract of *Artemisia, Achyranthes aspera, Amomum subulatum, Aristolochia indica* and *Andrographis paniculata* against some gram negative and gram positive bacteria depicts the presence of strong antimicrobial compounds and their phytochemical studies are required to determine the type of compound responsible for the antimicrobial effect of these medicinal plants. (Rao, *et al.*, 2006). Extract and fractions of mango seed kernel showed anti diarrhoeal activity (Kabuki *et al.*, 2000), antibacterial activity (Das, *et al.*, 1989; Sairam, *et al.*, 2003; Rajan, *et al.*, 2006) anti helminthic activity (Sharma, *et al.*, 1971) and anti inflammatory activity (Das *et al.*, 1989). Gastro intestinal disorders were treated with *Mangifera indica* along with honey. (Kurian, 1998). 

Antimicrobial activity of *Decalepis hamiltonii* were studied by Elizabeth *et al.*, (2005), Vimala and Elizabeth (2006); *D. Hamiltonii* is being used as popular cool drink known as nannari and their root extract is reported to inhibit the growth of the fungus such as *A. flavus, Rhizopus* and bacterial genua such as *Salmonella sp Streptococcus sp, Staphylococcus sp, Yersinia sp* and Yeast such as *Candida sp.*