1. INTRODUCTION

Plants are the basic source of knowledge of modern medicine. Nature has been a source of medicinal agents for thousands of years and an impressive number of modern drugs have been isolated from them, many based on their use in traditional medicine. Medicinal plants have the capacity to produce a large number of organic phytochemicals with complex structural diversity that is known as secondary metabolites. Some of these secondary metabolites are produced for self defense. Over the last 20 years, a large number of secondary metabolites from different plant species have been evaluated for their antimicrobial, hepatoprotective, anti-inflammatory, and anticancer activity. The demand on plant based therapeutics is increasing in both developing and developed countries due to growing recognition that they are natural products, non narcotic, easily biodegradable, pose minimum environmental hazards, have no adverse side-effects and are easily available at affordable prices.

Sixty per cent of the world population and eighty per cent of the population in developing countries rely on traditional medicine for curing many diseases (Grabley and Thiericke, 1999; Ali-Shtayeh et al., 2000; Shrestha and Dhillon, 2003). The natural products form an integral part of human life from ancient civilizations to the current century and more than half of the drugs in the market are natural products or derivatives of them.

India is a varietal emporium of medicinal plants and is one of the richest countries in the world in regard to genetic resources of medicinal plants. The agro-climatic conditions are favorable for introducing new exotic plant varieties (Mahesh and Satish, 2008) Many infectious diseases are known to be treated with herbal remedies throughout the history of mankind. In India, Herbal medicines have been the basis of treatment and cure for various diseases in traditional methods practiced such as Ayurveda, Unani and Siddha (Sukhder, 1997). Most of the medicinal plants contain Tannins, Gallic acid, Quinine, flavonoids and alkaloids. Plant origin phytochemicals have an enormous therapeutic potential to heal many infectious diseases (Iwu et al., 1999).

Liver injuries are a major worldwide health problem, with high endemicity in developing countries are mainly caused by chemicals and some drugs when taken in very high doses.
Despite advances in modern medicine, there is no effective drug available that stimulates liver function, offer protection to the liver from damage or help to regenerate hepatic cells. Inflammatory disorders are another major health threat in the world. Drugs which are in use presently for the management inflammatory conditions are either narcotics (e.g. opioids) or non-narcotics (e.g. salicylates) and corticosteroids (e.g. hydrocortisone). The synthetic drugs against liver damage and oral bacterial infections are not effective which cause severe side effects on affected patient. However bacterial infections and inflammation play a role in the development of drug induced liver injury in the patient.

Likewise, the increasing prevalence of multi drug resistant strains of bacteria and the recent appearance as strains with reduced susceptibility to antibiotics leads to the emergence of untreatable bacterial infections and need to the search of new antibiotics (Sieradzki et al., 1999; Tomoka et al., 2002). The potential of higher plants as source for new drugs is still largely unexplored. Random screening tool in discovering new biologically active molecules has been most productive in the area of antibiotics. Secondary metabolites have been extensively investigated as sources of medicinal agents (Krishnaraju et al., 2005). On a global basis, at least 130 drugs, all single chemical entities extracted from higher plant or modified further synthetically are currently in use (Newman et al., 2000; Westh et al., 2004). A wide range of medicinal plant parts is used for extract as raw drugs and they posses varied medicinal properties. The different parts used include, root, stem, flower, leaves. Although hundreds of plant species have been tested for antimicrobial properties, the vast majority of have not been adequately evaluated. Systematic investigation was undertaken to screen the antimicrobial activity of selected medicinal plants against oral bacterial infection. To overcome this problem, bioactive compounds with no side effects have to be identified from the medicinal plants.

Large number of plants which were shown to exhibit biological and pharmacological effects belonging to a number of families including Aizoaceae(Akhtar and Ahamad, 1995), Asteraceae (Alarcon de la Lastra et al., 1994), Caesalpiniaceae (Noamesi et al., 1994), Celastraceae (Souza-Formingoni et al., 1991), Combretaceae (De Pasquale et al., 1995), Leguminosae (Akhtar and Ahmad, 1995; Bacchi et al., 1995), Zingiberaceae (Al-Yahya et al., 1990; Yamahara et al., 1990; Rafatulla et al., 1995), Apocynaceae (Hussain and Gorsi, 2004), Rhamnaeaceae (Borgi et al., 2007) have been studied in detail. Among the various number of
plants, the members of Theaceae and Combretaceae plants are widely and abundantly distributed in this part of the world exhibit various biological and pharmacological activities. Only a few members have been studied for the pharmacological activities. However, plants such as *Camellia sinensis* and *Terminalia chebula* are commonly used for various ailments.

*Camellia sinensis* (L.) kuntze (Theaceae), another medicinal plant shows antiproliferative (Nihal et al., 2005), antiangiogenic (Tang et al., 2003) antimetastatic (Jung and Ellis, 2001) and proapoptotic (Qanungo et al., 2005) activities in various *in vitro* and *in vivo* tumor models.

*Terminalia chebula* Retz, (Combretaceae) is a flowering evergreen tree attaining a height up to 30m, with is distributed in the sub-Himalayan tracks, and the eastern, western and southern parts of India. Different part of this plant has germinated substantial compounds to cure various diseases like cancer (Gaidhani et al., 2009), various bacterial infection (Kannan et al., 2009), diabetic (Rao and Nammi 2009), Cytoprotective (Tayal et al., 2012), spasmogenic (Mard et al., 2011), NF-$\kappa$B inhibition in human lymphoblastic T cells (Das et al., 2011), antioxidant activity, and neuroprotective (Chang et al., 2012), antinociceptive (Kaur et al., 2010), antiulcerogenic (Sharma et al., 2011), antiplasmodial activity and cytotoxicity (Pinmai et al., 2010), nephrotoxicity (Gopi et al., 2010), anti-arthritis (Nair et al., 2010), anti-aging (Manosroi et al., 2010), cardio protective (Chattopadhyay and Bhattacharyya, 2007) and anti-hyaluronidase effect (Srivastav et al., 2010) have been reported. Hence the present study is aimed to investigate the anti inflammatory, hepatoprotective and antibacterial activity of *C. sinensis* and *T. chebula*.

On the basis of the above facts and information, the present work has been designed and planned to evolve the strategy for the identification of bioactive compounds from the medicinal plants against liver damage, inflammation and oral bacterial infections causing chronic disease in human beings with the following objectives.

- To analyse phytochemical constituents of *C. sinensis* and *T. chebula* by qualitative and GC-MS analysis.
➢ To study the antibacterial activity of *T. chebula* and *C. sinensis* against oral pathogenic bacteria.

➢ To investigate the anti-inflammatory efficacy of *T. chebula* and *C. sinensis* in Carrageenan induced paw edema in rats and

➢ To study the hepatoprotective activities of *T. chebula* and *C. sinensis* in CCl₄ induced rat models.