INTRODUCTION

Plants have been the basis of many traditional medicine systems throughout the world for thousands of years and continue to provide humankind with new remedies. About three quarter of the world’s population relies on plants and plant extracts for their healthcare. India, represented by rich culture, traditions and natural biodiversity, offering a unique opportunity for drug discovery researchers [1]. Nowadays the modern advanced scientific methods of evaluation comprising the pharmacognostic, phytochemical investigation to isolate the components present and pharmacological evaluation to find their therapeutic efficacy have lend to rational usage of the medicinal plants.

*Berberis tinctoria* Lesch. and *Mahonia leschenaulitia* Takeda, belonging to the family berberidaceae is found in Nilgiris and Pulney hills of Western Ghats at an altitude of about 6,000 ft [2]. It has been reported that the alcoholic extracts of the aerial parts of the plants were found to have cardiovascular and diuretic activity [3] and the methanolic extract of the root bark have significant antifungal activity [4]. Antimicrobial and hepatoprotective of the aqueous root extract have been reported by the natives and tribes of Nilgiris. The plants are reported to contain alkaloids, like berberine, berbamine, jatrorrhizine and palmatine [5].

Liver is a major organ system involved in the metabolism of various drugs, xenobiotics and toxins. During the metabolism, excessive free radicals are generated and may cause liver damage.

Reactive Oxygen Species (ROS) are continuously generated during metabolic process to regulate a number of physiological functions essential to the body [6]. ROS are prone to withdraw electron from biological macromolecules such as protein, lipids, and nucleic acids in order to gain stability in biological system. When the production of ROS exceeds the capability of the body to detoxify these reactive intermediates, oxidative stress would be generated. This may lead to drastic harm to the body such as membrane damage and damage to the different organ.

Alcoholic liver diseases, common consequence of prolonged and heavy alcohol intake are a leading health problem after cardiovascular disease, cancer and AIDS. Alcohol in the form of Country-Made Liquor (CML) containing 28.5 %v/v ethanol content is
consumed for thousands of years is a common cause for ROS insult in the liver\textsuperscript{[7]}. Despite the claim that small amount of alcohol consumption may be beneficial for preventing and reducing the mortality rate of coronary heart diseases and ischemic stoke, it should also noted that alcohol is toxic to almost every organ of the body especially to the liver\textsuperscript{[8]}.

The liver is the key organ regulating the homeostasis of the body. Liver disorders are among the important disorder affecting mankind. The diversity of its physiological role shows that if any kinds of injury have occurred or its function impaired, it is of grave implication to the effected person. Every year, about 18,000 people are reported to die due to cirrhosis caused by hepatitis\textsuperscript{[9]}.

No remedy is available in the allopathic system of medicine to treat hepatic damage or to enhance the recovery of liver from damage. However numbers of medicinal plants have been advocated in traditional system of medicine, especially in Ayurveda, for treating liver disorder. Their usage is in vogue since centuries and is quite often claim to offer significant relief. In addition usage of many folklore remedies, mainly plant products, is quite common throughout India. In spite of such wide spread use interest in hepatoprotective activity kindle, especially outside India. Only after the publication of the report on isolation of silymarin, a flavonolignan, from \textit{silybum marianum} and its efficacy as a hepatoprotective agent, the interest has grown in India.

There are many plants that has good hepatoprotective activity, some good examples include are \textit{Myristia malabarica}\textsuperscript{[10]}, \textit{Acanthus ilicifolius}\textsuperscript{[11]} and \textit{Phyllanthus niruri}\textsuperscript{[12]}.

Over the past few decades there has been much interest in natural materials as sources of new antibacterial agents. Different extracts from traditional medicinal plants have been tested. Many reports show the effectiveness of herbs against microorganisms; as a result, plants have become one of the bases of modern medicine\textsuperscript{[13]}. Plants have given the Western Pharmacopoeia about 7,000 different pharmaceutical important compounds and a number of top - selling drugs of modern times, such as quinine, artemisinin, shikonin and comptothecin\textsuperscript{[14]}. The acceptance of traditional medicine as an alternative form of health care and development of microbial resistance to the available antibiotics has led to investigate the antimicrobial activity of medicinal plants\textsuperscript{[15]}. 
Growth of microorganism in food may cause food borne disease \[16\]. Synthetic additives have been widely used. The trend is to decrease their use because of the growing concern among consumers about such chemical additives. Consequently, search for natural additives, especially of plant origin, has notably increased in recent years. Therefore, the development and application of natural products with both antioxidants and antibacterial activities especially in meat products may be necessary and useful to prolong their storage self life and potential for preventing food diseases \[17\]. Rosemary (Rosmarinus officinalis) originally grows in South Europe. Its herb and volatile oil are commonly used as spice and flavouring agents in food processing for its desirable flavour, high antioxidant activity and lately as antimicrobial agent \[18\].

The literature survey reveals that much work was not done on Berberis tinctoria Lesch. and Mahonia leschenaultia Takeda. and based on this, I felt it is worth full to do extensive study on these two plants. Hence, the present study deals with the hepatoprotective and antibacterial evaluation of Berberis tinctoria Lesch. and Mahonia leschenaultia Takeda. And definitely this work will throw some light for innovation in the field pharmacy.