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Original Article

Antitubercular Activity and Isolation of Chemical Constituents from plant *Vitex negundo* Linn

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Abstract

Tuberculosis still remains a leading cause of death in the world. Currently considerable interest in natural products and their derivatives in the area of drug research for multidrug resistant tuberculosis (MDR-TB). The present investigation focused on identification, isolation, characterization of lead constituents and to determine the antitubercular activity of their enriched fractions and isolated compounds by Nitrate reductase assay (NRA) method. Leaves extracted with ethanol by soxhlet extraction and ethanol extract separated in petroleum ether, chloroform and methanol by separating funnel and fractionated by column chromatography. Ethanol extract, petroleum ether and chloroform fraction showed antitubercular activity at 150 µg/mL. Isolated HEA-2, CM-20 and CM-24 showed MIC at 100 while PE-34 at 50 and 100 µg/mL. β-sitosterol content in chloroform and petroleum ether fractions was calculated by using HPTLC. Pet. ether and chloroform fractions of ethanol extract which contains betulinic acid, ursolic acid and β -sitosterol shows anti- TB activity. HPTLC, IR, 1 H NMR and GC-MS study of isolated PE-34 gave satisfactory results for confirmation of the structure as ursolic acid with significant antitubercular potential.

Keywords: Mycobacterium tuberculosis; *Vitex negundo*; NRA; HPTLC; Ursolic acid.

Introduction

Tuberculosis is a major threat killing about 2 million people each year. WHO estimates that 1 billion people will be newly infected in the period 2000-2020, resulting in 35 more million deaths, nearly one billion more people will be newly infected, 200 million will get sick and 70 million will die from TB if control not strengthened and active TB left if untreated (1, 2). HIV out-breaks; India can have an additional impact on the increase of TB in India. The human immune deficiency virus (HIV) infection, MDR-TB, poverty, migration, ethnic conflicts, and substance abuse is an increasing problem and has become an additional challenge to TB control efforts (3, 4). A combination of factors has contributed to the observed increase in tuberculosis cases, including the worldwide. The situation has recently been complicated by the human immunodeficiency virus (HIV) pandemic and the increased prevalence of multi-drug resistant strains of *Mycobacterium tuberculosis* (5). In spite of the availability of effective antitubercular drugs, such as isoniazid and rifampin, the emergence of resistant strains of *M. tuberculosis*, the pathogenic synergy of the tubercular and nontubercular mycobacterial infections with HIV infections the scarce

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