ISSN:

Journal of Pharmacokinetics & Experimental Therapeutics

Phenolic acid tethered co-drugs of isoniazid: Synthesis, pharmacokinetics and investigation of antimycobacterial and hepatoprotective potential

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Abstract: According to WHO statistics of 2018, there were an estimated 1.2 million TB deaths among HIV-negative people. Isoniazid is being used for more than 60 years in the treatment of this deadly disease, but emergence of resistance towards this drug and metabolic and morphological aberrations in the liver have raised serious concerns regarding its continued use in future.

To overcome these hazardous effects, a novel hepatoprotective and antimycobacterial prodrug strategy was developed by combining INH with phenolic acids (gallic acid, syringic acid &vanillic acid) as antioxidant promoeities for probable synergistic effect.

Prodrugs synthesized by Schotten Baumann reaction were characterized by spectral analysis and *in vitro* and *in vivo* release studies were carried out using HPLC. Their hepatoprotective potential was evaluated in male Wistar rats by performing the liver function tests, oxidative stress markers and histopathology studies. The antimycobacterial efficacy of prodrugs was examined in terms of its ability to decrease the lung bacillary load in Balb/c mice infected intravenously with *Mycobacterium tuberculosis*.

Biography: Neha V. Bhilare has completed her PhD recently from BharatiVidyapeeth's Poona College of Pharmacy. She is currently working as an Associate Professor at Arvind GavaliCollge of Pharmacy and is actively involved in research, learning and teaching. She has published papers in reputed journals with good impact factors and also authored a chapter on "Prodrugs for Lipophilicity enhancement"

Publications:

1.Novel Thioester prodrug of N-acetyl cysteine for odor masking and bioavailibilty enhancement. Neha V. Bhilare,

2.Synthesis and evaluation of morpholinoethylester conjugate of N-acetylcysteine in ovalbumin- induced airway hyperresponsiveness in Sprague dawley rats.

3.Phenolic acid-tethered isoniazid for abrogation of drug-induced hepatotoxicity: Design, synthesis, kinetics and pharmacological,

4.Amelioration of hepatotoxicity by bio-cleavable aminothiol chimeras of isoniazid: Design, synthesis, kinetics and pharmacological evaluation.

5."Lipophilicity in prodrug designing." In Recent Advancement in Prodrugs, CRC Press, USA, 2019

18th International Conference on Drug Formulation & Drug Delivery , May 04-05,2020,Bangkok,Thailand

Abstract Citation : Neha V. Bhilare,Phenolic acid tethered co-drugs of isoniazid: Synthesis, pharmacokinetics and investigation of antimycobacterial and hepatoprotective potential,DRUG FORMULATION CONGRESS 2020,May 04-05,2020,Bangkok,Thailand, pp:1