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Synthesis of New Anti-Tuberculosis Drugs

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Abstract : Tuberculosis (TB) is a deadly contagious disease that is caused by a bacterium called Mycobacterium tuberculosis. More than sixty years ago, the introduction of the first anti-TB drugs for the treatment of TB (streptomycin (STR), p-aminosalcylic acid (PAS), isoniazid (INH), and then later ethambutol (EMB) and rifampicin (RIF)) gave optimism to the medical community, and it was believed that the disease would be completely eradicated soon. Worldwide, the number of TB cases has continued to increase, but the incidence rate has decreased since 2003. Recently, highly drug-resistant forms of TB have emerged worldwide. The prolonged use of classical drugs developed a growing resistance and these drugs have gradually become less effective and incapable to meet the challenges, especially those of multi drug resistant (MDR)-TB, extensively drug resistant (XDR)-TB, and HIV-TB co-infections. There is an unmet medical need to discover newer synthetic molecules and new generation of potent drugs for the treatment of tuberculosis which will shorten the time of treatment, be potent and safe while effective facing resistant strains and non-replicative, latent forms, reduce adverse side effect and not interfere in the antiretroviral therapy. This paper attempts to bring out the review of anti-TB drugs, and presents a novel method of synthesizing new anti-tuberculosis drugs and potential compounds to overcome the bacterial resistance and combat the re-emergence of tuberculosis.

Keywords : tuberculosis, mycobacterium, multi-drug resistant (MDR)-TB, extensively drug resistant (XDR)-TB
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