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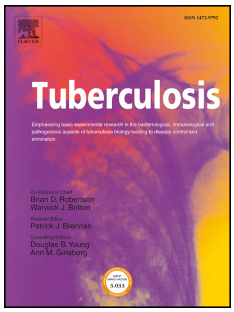

Anti-*Mycobacterium tuberculosis* activity of naphthoimidazoles combined with isoniazid and rifampicin

Lélia Pacheco Corrêa Barros, Karina Pena Del Rio, Tatiane dos Santos Conceição Carvalho, Maria do Carmo Freire Ribeiro Pinto, Kelly Cristina Gallan de Moura, Priscila Cristina Bartolomeu Halicki, Daniela Fernandes Ramos, Pedro Eduardo Almeida da Silva

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ABSTRACT

Tuberculosis (TB) is the cause of more than one million deaths worldwide, and despite being a curable disease, some factors can make therapy difficult, emphasizing the need for the development of new drugs that may potentiate the action of the classic anti-TB antimicrobials. Naphthoimidazoles show a broad spectrum of biological activities, including antimycobacterial activity. The aim of this study was to evaluate the anti-*Mycobacterium tuberculosis* activity of nine naphthoimidazoles, alone and combined with isoniazid (INH) and rifampicin (RIF). We evaluated the minimum inhibitory concentration (MIC) of the compounds, the fractional inhibitory concentration of the combinations of the naphthoimidazoles with INH or RIF, and the cytotoxicity of these compounds. Eight compounds showed MICs ranging from 1.56 to 25 µg/mL and the presence of substituents on phenyl groups shown to be essential for antimycobacterial activity. Four compounds showed additivity with both INH and RIF and showed SI values higher than 10, indicating safety. Thus, considering the antimycobacterial activity and the absence of antagonism between naphthoimidazoles and the two main drugs for TB treatment, these compounds could be scaffolds for the development of new anti-TB drugs.

Key words: Tuberculosis; new drugs; naphthoimidazoles.