

Recent advances in antitubercular natural products

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Abstract

Currently, one third of the world's population is infected with *Mycobacterium tuberculosis* and 8.9e9.9 million new and relapse cases of tuberculosis are reported every year. The emergence of new cases, the increased incidence of multi-drug resistant strains of *M. tuberculosis*, and the adverse effects of first-line second-line antituberculosis drugs have led to renewed research interest in natural products in the hope of discovering new antitubercular leads. Interestingly, hundreds of natural products, possessing novel, uncommon, and known structural architectures, have been reported to exhibit activity towards non-resistant and multi-drug resistant strains of *M. tuberculosis*. The present review covers literature published during the last five years about those naturally occurring compounds with reported growth inhibitory activity in vitro towards sensitive and resistant *M. tuberculosis* strains. Compounds with antitubercular properties at minimal inhibitory concentrations (MICs) of less than 50 mg/mL or 60 Mm were selected and grouped according to their source of origin (plants, bacteria, fungi, marine organisms, etc) and chemical type (terpenes, steroids, alkaloids, flavonoids, poliketides, peptides, etc). In some cases, the selection covers those structurally relevant natural products with low bioactivity (MICs of ≤ 128 mg/mL), and also those semisynthetic derivatives with remarkable antitubercular activity (MICs of ≤ 10 mg/mL). Additionally, this review includes a special section for those natural products that specifically target genes or enzymes of *M. tuberculosis*.