



GC-MS analysis of *Myrtus communis* extract and its antibacterial activity against Gram-positive bacteria

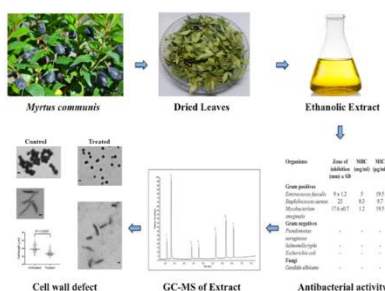
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Abstract

Myrtus communis is a typical plant of Mediterranean area. The different parts of this plant such as berries, branches, and leaves have been used worldwide as a traditional/folk medicine for the treatment of various ailments and diseases. Ethanolic leaf extract of the plant was prepared and its effect on bacterial growth was investigated. The ethanolic extract showed strong inhibitory effect against Gram-positive and acid-fast bacteria with significant inhibition-zone size (9–25mm), MIC (4.87–78 µg/ml), as well as MBC (0.3–20 mg/ml). However, no effect was observed on the growth of Gram-negative bacteria. The growth inhibition was found to be associated with the damage of cell wall as the extract-treated cells were sensitive to cell wall-targeting antibiotics and displayed the cell wall damage-depicting morphological defects. GC-MS analysis confirmed the presence of novel compounds in addition to the most representative compounds of the essential oils/extracts of *M. communis* of other country origins. These results demonstrate that *M. communis* leaf extract could be the source of compounds to be used for the treatment of Gram-positive bacterial infections. This is the first report, which provides insights into the mechanism of action of the extract in inhibiting the growth of Gram-positive bacteria.

Image



Biography

Dr. Mir earned his PhD from the Indian Institute of Science (IISc), Bangalore, India. After acquiring knowledge and gaining interest in understanding the biology of human pathogen *Mycobacterium tuberculosis*, Dr. Mir moved to Harvard Medical School, Boston, USA, and investigated the signaling mechanisms of environmental queues by the same pathogen. Dr. Mir subsequently moved to Wadsworth Center of New York State Department of Health, NY, USA, to further pursue the translation mechanism of leaderless RNAs of mycobacterium. Presently Dr. Mir is an Assistant Professor at the College of Applied Medicine, King Khalid University, Saudi Arabia, where beyond teaching, he is involved in identifying the novel natural compounds having antibacterial activity against the drug-resistant/sensitive bacterial strains and subsequently investigating the underlying molecular mechanisms for such activity.