

OR-23**The Effects of *Ageratum conyzoides* Fractions on the Growth Dynamics and Cellular Morphogenesis of *Mycobacterium tuberculosis*.**

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Ageratum conyzoides is a common weed locally known as rumput tahi ayam, which thrives in the proximity of habitation in any soil, in waste lands and ruined sites. In traditional Malaysian medicine, *A. conyzoides* is used to treat a variety of ailments including symptoms of tuberculosis (TB). In this study, we investigated the anti-TB activity of different fractions of this plant and their effects on the growth dynamics and cellular morphogenesis of *Mycobacterium tuberculosis* H37Rv ATCC 25618 to validate its traditional use. The methanol, n-hexane, chloroform, ethyl acetate, n-butanol, and aqueous fractions of *A. conyzoides* (whole plant) were screened for their *in vitro* anti-TB activity using a colorimetric tetrazolium microplate assay against the tubercle bacilli. The effects of the most active fractions on the growth of the mycobacteria was studied over a 7-day exposure in Middlebrook 7H9 broth and the colony counts were evaluated from growth on Middlebrook 7H10 agar plates after 21 days incubation. The effects of the fractions on the cellular morphogenesis of *M. tuberculosis* was observed under scanning electron microscope (SEM). All the six fractions exhibited activity with MICs in the range of 1600 - 100 µg/ml. The highest activity was exhibited by n-hexane with MIC/MBC values of 100/100 µg/ml followed by chloroform with MIC/MBC values of 100/200 µg/ml. The growth dynamics of the mycobacteria were followed based on the percentage of initial colony counts on day 0 as compared to the negative (isoniazid) and positive controls. The results indicated that the n-hexane and chloroform fractions exerted immediate cidal effects on *M. tuberculosis* as shown by a sharp decrease of more than 90% of the initial colony count on day 0 after only one day exposure. By the end of the study period less than 1% of the initial cell population remained viable. The results of SEM observation demonstrated striking effects of the fractions on the cellular morphology of *M. tuberculosis* compared to the control cells with clear evidences of cellular damage. The outcome of this study gives a scientific basis to the traditional use of *A. conyzoides* for symptoms of TB and this plant could be a potential source of anti-TB compounds worthy of further investigation.
