

**IN VITRO INTERACTIONS OF *COSTUS SPECIOSUS* (J. KOENIG) SM.,
CYMBOPOGON CITRATUS (DC. EX NEES) STAPF.
AND *TABERNAEMONTANA CORONARIA* (L.) WILLD. WITH FIRST-
LINE ANTI-TUBERCULOSIS DRUGS AGAINST *MYCOBACTERIUM
TUBERCULOSIS* H37Rv**

ABSTRACT

Global tuberculosis (TB) burden underscores the importance of developing new effective anti-TB drugs. This study was concerned with prospecting for potential anti-TB agents from Malaysian medicinal plants. In our previous study, we have reported that n-hexane fractions of Costus speciosus (C. speciosus) (J. Koenig) Sm., Cymbopogon citratus (C. citratus) (DC.) Stapf. and Tabernaemontana coronaria (T. coronaria) (Jacq.) posses promising anti-TB activity against Mycobacterium tuberculosis (M. tuberculosis) H37Rv with minimum inhibitory concentrations (MICs) of 200–100 µg/mL. This study aimed to investigate the interactions of these active fractions with first-line anti-TB drugs (isoniazid, rifampicin, ethambutol and streptomycin) against M. tuberculosis H37Rv using the microdilution checkerboard method. C. citratus (stem-rhizome) n-hexane fraction exhibited synergism with all drugs except ethambutol which showed additive interaction. Synergistic was also observed when C. speciosus (stem-flower) n-hexane and T. coronaria (leaf) n-hexane fractions in combination with rifampicin. C. speciosus (stem-flower) n-hexane and T. coronaria (leaf) n-hexane exhibited additive interaction with isoniazid, ethambutol and streptomycin. Hence, these active plants are worthy of further investigations for the discovery of anti-TB drug leads.

Keywords: Plant fractions, Checkerboard, Fractional inhibitory concentration index, Synergism