**Aims:** This study has evaluated ethanol extracts from five medicinal plants selected through ethnobotanical study from Lake Victoria basin, Tanzania for their *in vitro* anti- mycobacterial activity against two *Mycobacterium species* and cytotoxicity against brine shrimp larvae.

**Study Design:** Laboratory experimental tests.

**Place and Duration of Study:** Institute of Traditional Medicine, Muhimbili University of Health and Allied Sciences, P.O. Box 65001, Dar es Salaam, Tanzania, between July 2010 and July 2011.

**Methodology:** Five medicinal plants were selected from the priority list obtained from Lake Victoria basin, Tanzanian side. Collection, processing and drying of plant samples were done in the field with the assistance of a botanist while extraction and concentration of plant samples to obtain crude extracts were done in the laboratory following standard procedures. The plants included in this study are *Antidesma membranaceum, Crassocephalum manii, Entada abyssinica, Croton dichogamus* and *Rubia cordifolia*. The two fold microdilution method was used to determine the MIC values of extracts against two *Mycobacterium* marker strains (*Mycobacterium indicus pranii* and *Mycobacterium madagascariense*). The cytotoxicity of plant extract was evaluated against brine shrimp larvae. Furthermore, the extracts were screened phytochemaly to establish the group of compounds responsible for the activity.

**Results:** Among the tested extracts, the stem bark of *A. membranaceum* and *C. manii* showed moderate to mild activity against *M. indicus pranii* (MIC = 0.3125 mg/ml) and *M. madagascariense* (MIC = 0.625 mg/ml) respectively. Furthermore, *A. membranaceum* exhibited significant toxicity activity with LC50 value of 36.134 µg/ml against brine shrimp larvae. Other plants were moderately active when tested *in vitro* against the above organisms. Phytochemical screening of extracts indicated the presence of different classes of compounds.

**Conclusion:** This study has shown the potential of the priority medicinal plant extracts to be the source of possible lead compounds and anti-TB drug candidates needed for the management of Tuberculosis. Isolation of active principles from active fractions will be further undertaken.