

**Bio assay guided isolation of anti-bacterial active compounds from whole plant extract of *Eleusine indica*****H.A.I. Perera, U.S. Athapattu, S. Rajapakse and S. Jayasinghe***Department of Chemistry, Faculty of Science, University of Peradeniya, Sri Lanka*  
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Development of new antibacterial compounds is highly important to overcome the problem associated with the rapid increase in the rate of infections, development of antibiotic resistance in microorganisms and side effects of synthetic antibiotics. In this regard, use of medicinal plants is becoming dominant as they have minimum side effects and low resistance to microorganisms. The aim of this study was to evaluate the antibacterial activity of the plant *Eleusine indica*, a widespread weed which is commonly referred to as Belathana in Sri Lanka and widely used as a medicinal plant for the treatment for sprains, dislocations, liver disorders, dysentery, convulsions, coughs, malaria etc. in ayurveda medicine. A detailed study was performed on the antibacterial activity of dichloromethane (DCM), ethyl acetate (EtOAc) and methanol (MeOH) extracts of whole plant against the Gram positive bacteria *Staphylococcus aureus*, methicillin resistant *Staphylococcus aureus* (MRSA) and Gram negative bacteria *Escherichia coli* using agar disk diffusion method. Only DCM extract of the plant showed antibacterial activity against *S.aureus* and *E.coli*. None of the extracts showed antibacterial activity against MRSA. The MIC values for the DCM extract were determined by agar plate dilution assay against bacterial isolates *S.aureus*, *E.coli* and MRSA. The MIC values obtained for *S.aureus* and *E.coli* are 900 ppm and 1024 ppm, respectively.

The dichloromethane extract of *E. indica* was subjected to bio assay guided fractionation using medium pressure liquid chromatography (MPLC), using solvent combinations of increasing polarity of hexane, ethyl acetate and methanol. From the column separation, 287 fractions were collected and thin layer chromatography was performed. Based on the TLC pattern, 11 fractions were obtained on combination of appropriate separations and the combined fractions were tested for the antibacterial activity against *S.aureus* using agar disk diffusion method. Only 3<sup>rd</sup> and 4<sup>th</sup> combined fractions showed antibacterial activity and these fractions were further separated using flash column chromatography and by observing the TLC patterns, 4 fractions were obtained on combination of appropriate separations. These obtained fractions were tested again for the antibacterial activity against *S.aureus* and only combined fractions 1 and 2 showed activity. The fractions were subjected to column chromatography and the active compound was isolated and tested for the antibacterial activity. Structural characterization is in progress and <sup>1</sup>H-NMR data showed the presence of double bond and OCH<sub>2</sub>/OCH<sub>3</sub> groups. This study reveals that the weed plant *E. indica* possesses strong antibacterial activity and isolated active compound would be able to use as potential antibiotic drug candidate, which can be further modified for the improved activity. Future studies will be focused on the structure elucidation of the active compound and structural modifications for the higher activity.