

Antibiotic resistance pattern and biofilm forming ability of *ESBL*-carrying *Escherichia coli* and its susceptibility to *Hemidesmus indicus* (L.) R.Br. root extract in conjunction with amoxicillin

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Present investigation was conducted to evaluate biofilm forming ability of *ESBL*-carrying *E. coli* recovered from wild carnivores and its susceptibility to *Hemidesmus indicus* root extract. *E. coli* isolates were characterized for *ESBL* genes by PCR, antibiogram by disc diffusion test and biofilm formation by microtitre plate assay. In next part of study, methanolic *Hemidesmus indicus* root extract (MEH) was evaluated alone and in combination with amoxicillin for antibacterial and antibiofilm activity against *ESBL* and biofilm producing *E. coli*. A total of sixteen (53.33%) *ESBL* producing isolates were obtained. Among which 6.25% isolates were strong biofilm formers whereas 68.75% and 25% were moderate and weak biofilm producers, respectively. Amoxicillin in combination with MEH significantly inhibited growth and biofilm forming ability of *ESBL*-carrying *E. coli*. Amoxicillin and MEH showed additive antibacterial interaction and MEH synergized amoxicillin's antibiofilm activity against 50% isolates. Based on present findings it is recommended to use a combination of MEH and amoxicillin for therapeutic management of multidrug resistant *ESBL*-carrying *E. coli*.

Keywords: *Hemidesmus indicus* root, Methanolic extract, Amoxicillin, *E. coli*, Antibiotic resistance, Biofilm