

Evaluation of antimicrobial effect of ethanol and chloroform extracts of *Stachys byzantina*

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Background and Aims: In this study antimicrobial effects of ethanol and chloroform extracts of *Stachys byzantina* which were used as antimicrobial agent in Iranian folk medicine were evaluated against 11 strain of gram positive and negative bacteria by Determination of MIC and MBC value.

Methods: Preliminary antibacterial activity study of the ethanol and chloroform macerated extracts of *S. byzantina* were investigated against eleven bacterial strain by cup plate method. After primary evaluation of the antibacterial activity of ethanol and chloroform extracts of *S. byzantina* MIC and MBC of extracts were determined by broth macro dilution method against the test organisms as recommended by the national committee for clinical laboratory standards NCCL 2006.

Results: The ethanol extract of *S. byzantina* showed more antimicrobial effects against all tested Gram positive and Gram negative bacterial strains with the largest diameter of inhibition zones 28 mm against *Staphylococcus aureus* (ATCC 29923) with lowest MIC and MBC value equal to (1.5, 6.25 mg/ml). The other MIC and MBC values against *Micrococcus luteus* (ATCC9341), *Klebsiella pneumoniae* (ATCC10031), *Escherichia coli* (ATCC8739), Methicillin Resistance *Staphylococcus Aureus* (ATCC33521), *Pseudomonas aeruginosa* (ATCC27853), *Streptococcus sanguis* (ATCC1447), *Streptococcus sorbinas* (ATCC1601), *Streptococcus mutans* (ATCC35608), *Streptococcus salivarius* (ATCC9222), *Streptococcus faecalis* (ATCC1373), with were assessed to be (0.15,3.1), (3.1,50), (3.1,100), (12.5,25), (12.5,50), (6.25,100), (12.5,50), (12.5,100), (12.5,100), (12.5, up to 200) mg/ml, respectively. The chloroform extract hasn't show good track of antimicrobial effect in comparison to ethanol extract.

Conclusions: The results concluded that the ethanol extracts of *S. byzantina* has a potential antimicrobial effect due to its flavenoids part of extract which reduced in chloroform extract. Ethanol extract of *S. byzantina* had the best antimicrobial effect on the tested micro organisms.

Keywords: MIC; MBC; Antimicrobial