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The Investigation of the Antimicrobial Activities of Piper betle L.

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Abstract : Nowadays, infectious diseases are prevalent and severe health problems as they render the increment of casualty, illness, and global economic recession. Along with the emergence of antimicrobial resistance, the potency of typically used antibiotics can be affected to a considerable degree. As a result, unorthodox antibiotics have become an urgent issue in the pharmaceutical field. Piper betle L., known as betle leaf, has been used for many purposes, such as a traditional home remedy, and has shown its ability in inhibiting bacteria as well as fungus. Thus, in this study, the investigation of antimicrobial activities of the Piper betle L. extracts was carried out using the Agar disk-diffusion method and Broth microdilution, aiming to evaluate and determine its efficacy to inhibit bacterial and fungal growth of Staphylococcus aureus, Salmonella typhi, and Candida albicans. In the agar disk-diffusion test, the extracts of Piper betle L. gave the maximum zone of inhibition of 15.1 mm (S. aureus), 7.7 mm (S. typhi), and 11.7 mm (C. albicans), while its MIC values were 1000 µg/ml in S. aureus and greater than 2000 µg/ml in S. typhi and C. albicans. According to the results, the Piper betle L. obtains an antimicrobial activity and shows a higher effect towards gram-positive bacteria than gram-negative bacteria. To determine the mechanism behind its ability, more research is needed to be performed in the future.

Keywords : antimicrobial activity, Candida albicans, Piper betle L., Salmonella typhi, Staphylococcus aureus
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