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Antibacterial and wound healing activities of Justicia gendarussa leaf extracts

Anita Gnana Kumari A V, Anbu Jeba Sunilson J, Anandarajagopal K and Abdullah Khan KPJ Healthcare University College, Malaysia

A ounds are physical injuries that result in an opening or breaking of the skin. Proper healing of wounds is essential for the restoration of disrupted anatomical continuity and functional status of the skin. The availability of the synthetic drugs capable of stimulating the process of wound repair is still limited, so there is increasing interest in finding the herbs having wound healing efficacy. Justicia gendarussa (family: Acanthaceae), commonly known as Daun Rusa in Malay is one of the traditional medicinal plants with diverse biological activities. A poultice of the fresh leaves is traditionally used for the treatment of minor cuts, fractures, wounds and sprains by the tribes of Iban, Kayan and Kenyah. No scientific study has been done to evaluate the wound healing and antibacterial activities of J. gendarussa leaves, the present study has undertaken to discover new potential antibacterial and wound healing herbal medicine. Water and ethanol extracts of J. gendarussa leaves were prepared by cold maceration method and assessed for its wound healing activity in the form of an ointment (10% w/w) in the excision wound model and its antibacterial efficacy against Bacillus subtilis, Proteus mirabilis, Staphylococcus aureus, Escherichia coli and Salmonella typhi. The ethanol extract ointment exhibited a significant (p<0.01) wound healing activity on 14th day followed by water extract (p<0.05). Among the two extracts, the ethanol extract exhibited good antibacterial activity and its MICs and MBCs were determined at 1-2.5 mg/ml and 2-3 mg/ml, respectively. The MICs and MBCs of formulated ointment were determined as 0.15-0.75 mg/ml and 1-1.5 mg/ml, respectively. The results were well comparable with standard antibiotic, bacitracin ointment (1 mg/gm). The results obtained from this study demonstrate that ethanol and water extracts of J. gendarussa leaves may have potential to promote wound-healing and antibacterial activities. Further studies with purified constituents to understand the complete mechanism in clinical settings is in process.

Biography

Anita Gnana Kumari A V is a Microbiologist. She has completed her MPhil in Microbial Technology and PhD in Microbiology and Marine Biotechnology from Centre for Marine Science and Technology at Rajakkamangalam, Tamil Nadu, India. Currently, she is an Associate Professor in the School of Pharmacy KPJ Healthcare University College, Nilai, Malaysia. She is involved in multidisciplinary teaching and research. Her focus of research is Clinical Microbiology and Antimicrobial Drug Discovery. She has 12 years of experience in teaching and research. She has published and presented various scientific papers in journals/conferences of international repute.

anitaanbu@yahoo.co.in

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