

ANTIBACTERIAL ACTIVITY OF SELECTED SRI LANKAN TRADITIONAL RICE VARIETIES AGAINST BACTERIA CAUSING SKIN INFECTIONS

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This study was to evaluate the potential antibacterial activity of the methanolic extracts of selected Sri Lankan traditional rice varieties (STRV) against bacteria causing skin infections. Five STRV including Kalu Heenati, Pokkali, Rathdal, Kahawanu and Sudu Murunga were used for *in vitro* antibacterial assays. Concentrations of rice extracts used for the assays were 1000 µg/mL and 2000 µg/mL from the each extract. The antibacterial activity was evaluated against common bacteria causing skin and soft tissue infections [*Staphylococcus aureus* (ATCC 25923), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC 25922)] and three clinical isolates of Methicillin resistant *staphylococcus aureus* (MRSA)) by the well diffusion method and viable colony count technique. All the selected Sri Lankan traditional rice extracts exhibited a potent antibacterial activity against *Staphylococcus aureus* with minimum bactericidal concentrations (MBC) of 200 µg/mL [minimum incubation time(MIT); 30 min] for Rathdal, 200 µg/mL (MIT; 60 min) for Kalu Heenati, Pokkali and Kahawanu, and 2000 µg/mL (MIT; 60 min) for Sudu Murunga. Extracts of Kalu Heenati and Rathdal showed the largest inhibition zones. Kalu Heenati, Pokkali and Rathdal showed an efficacious inhibitory activity against MRSA (MBC; 200 µg/mL, MIT; 60 min), whereas the highest inhibitory activity was observed for Rathdal. Only the extract of Kalu Heenati demonstrated a slight activity against *Pseudomonas aeruginosa*. None of the rice extracts studied evinced an antibacterial activity against *Escherichia coli*. The present study highlights the importance of STRV as a potential source of antibacterial compounds associated with skin infections. Selected STRV show potent antibacterial activity mainly against Gram positive bacteria. Methanolic extract of Rathdal and Kalu Heenati showed a high efficacious inhibitory effect against *Staphylococcus aureus* and MRSA. The results of this study facilitate the use of STRV in traditional medicinal practices to cure bacteria-borne skin diseases.

Keywords: Traditional rice, Antibacterial activity, Skin infections