A high profile indigenous bacteriocin producing *Pseudomonas aeruginosa* strain: production, characterization and infection induced animal model

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Bacteriocins are ribosomally synthesized bioactive proteins that are produced by varied types of bacteria. These proteins have received attention because of their high level diversity, specificity, application as food preservatives, alternative therapies and health care products. We hereby report a research based study covering three hundred and thirty five indigenous strains of bacteria that were screened for bacteriocinogenic potential. Accordingly, a clinical *Pseudomonas aeruginosa* SA189 strain (identified by conventional and 16S r DNA analysis) exhibited an excellent bioactivity against a wide range of bacterial strains such as *Staph. aureus*, *Listeria monocytogenes*, *E.coli* and *Pseudomonas* spp. as well as some dermatophytic fungal strains. The Pyocin SA 189 (bacteriocin) was purified by ammonium sulfate precipitation and gel filtration chromatography. The purity of the protein was checked by SDS-PAGE that suggested molecular weight of 66KDa approximately. This pyocin was resistant to proteolytic and lipolytic enzymes and also retained its bioactivity after autoclaving. Metal salts, organic solvents and surfactants also had no effect on its bioactivity. Scanning electron microscopy revealed a bactericidal mode of action by Pyocin SA189 against the sensitive *Staph. aureus* SA 84 strain. This pyocin, when administered in animals, showed no acute or delayed toxic/ allergic reactions (observed as per general well being, blood picture and blood biochemistry). The pyocin SA 189 was also applied against an induced superficial infection by *Staph. aureus*. The infection site was healed within four days of the treatment.