Abstract No: BP-33 **Biological Sciences**

Isolation and identification of some members of the human skin flora

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Skin is the largest organ of the human body and provides habitat for a diverse flora of microorganisms although it is an inhospitable place for many microorganisms because of the acidity and antimicrobial secretions of the body. An enhanced understanding of the skin microbiota is necessary to gain insight into microbial involvement in human skin disorders and to enable novel antimicrobial therapeutic approaches for treating them. Culture-based methods are essential in isolating and identifying viable cutaneous microorganisms such as bacteria and fungi. The main objective of this study was to isolate and identify normal flora of the skin by culture methods. Swab samples were taken from the side of the nose and elbow and were inoculated on Nutrient agar to obtain pure cultures. Identification was done by methods described in the "Cowan and Steel's Manual for the Identification of Medical Bacteria".

Some of these isolates were Gram-positive, non – motile cocci and some were Gram-negative, motile rods. Cellular arrangement of Gram-positive cocci was found to be as clusters and chain, but no spore former among isolates. Gram-positive, non - motile, oxidase negative, catalase positive and facultative anaerobic cocci were identified as *Staphylococcus.* Gram-positive, non – motile, oxidase negative, catalase negative and facultative anaerobic cocci were identified as *Streptococcus. Pseudomonas* isolates were Gram negative, rod – shaped, motile, oxidase positive, catalase positive aerobic bacteria. Biochemical identification process was extending up to the species level. Among the *Staphylococcus* isolates, there were *Staphylococcus aureus* and *Staphylococcus epidermidis*. These two isolates were differentiated by performing selected set of biochemical tests; Coagulase test, Mannitol fermentation on Mannitol salt agar and DNase reaction were major biochemical tests that were helped to identify species of *Staphylococcus* genus. Isolates belonged to the Genus *Pseudomonas* were confirmed by growing on a selective medium for *Pseudomonas.* This isolate showed fluorescence under UV light due to the production of the pigment flourescein when it was grown on King's B medium. It produced green colour pigment on King's A medium and peptone water, have the ability to hydrolyse Tween 80 and grow on MacConkey agar. The negative result in the egg – yolk reaction was helped to further confirmation of this isolate as *Pseudomonas aeruginosa.* β – haemolysis on blood agar, positive result for esculin hydrolysis and sensitivity to bacitracin were major characteristics to identify an isolate as *Streptococcus pyogenes.* Positive and negative controls were employed for the accurate determination of results. Therefore, it could be concluded, *Staphylococcus aureus, Staphylococcus epidermidis, P. aeruginosa* and *Streptococcus pyogenes* are some members of the human skin flora that can be isolated and identified using culture based methods. These isolated and identified bacteria were used to test the antimicrobial activity of an ayurvedic drug that is used to treat skin wounds and skin rashes.

Keywords: Skin flora, *Staphylococcus, Pseudomonas, Streptococus*