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Identification of Pathogenic Contamination of Shared Cosmetic Preparations and Tools

Mays Maraqa, Sundus Abu Afefeh, Loay Al-Natsheh, Zaid Joulani, Seema Fallah.

Hebron university, College of Pharmacy & Medical Science, Medical Laboratory Sciences Department.

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Background: Women tend to share cosmetics and makeup tools on the personal level and in beauty salons and centers. Despite the antimicrobial and preservative content present in cosmetic preparations and tools in addition to well-presented expiry, several studies confirmed various microbial growth in opened and used cosmetic preparations and tools. This is essential to raise awareness about the pathological impact of sharing cosmetic preparations and tools on the health of Palestinian women.

Objectives: This study was conducted to identify microbial contamination upon sharing cosmetic preparations and makeup tools and to identify their potential microbial contaminants.

Methods: A convenient sample of 200 shared cosmetic preparations and tools were collected from all governorates in the West Bank. Samples were inspected from beauty salons, cosmetic shops and university students. Samples were eyeshadow, beauty blender, lipstick, scissors, mascara, foundation cream, eyeliner, combs, concealer, and makeup brushes. Samples were collected by sterile swab, inoculated on the surface of a blood, MacConkey and chocolate agar and then incubated at 37°C. Pathogenic growth was isolated and identified by sub-culturing on differential and selective media. Identification was based upon morphology of colonies, Gram reaction and standard biochemical tests such as catalase, oxidase, and analytical profile index (API-20E kit). The collected data were statistically analyzed using SPSS version 25.0.

Results: About 74–85% of all used products were contaminated with bacteria. The contaminants isolated from the collected samples were; Enterococcus, Staphylococcus spp, Staphylococcus



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aureus, *Klebsiella pneumoniae*, *Escherichia coli*, *Pseudomonas* spp, *Bacillus* spp, and *Corynebacterium*.

Conclusion: This study provides evidence on the high risk of spread of pathogenic dermatological pathogens through sharing cosmetic preparations and tools because of inadequate hygienic use.

Keywords: Microbial contamination, Makeup Tools, beauty salons and center, dermatological disorders, awareness, Palestine.

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Correspondence concerning this article should be addressed to the mentioned authors at the mentioned institutes.

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E-mail: research@admin.alquds.edu

Palestine, Abu Dis, Al-Quds University