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Investigation of the Antimicrobial Effect of Cleaning Products

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Aim of study: Surface cleaners, shampoos, shower gels, hand sanitizers, liquid soaps, dishwashing detergents are the cleaning products we use in daily life. Because water was not enough to provide hygiene. Soap and detergents perform cleaning and foaming of the washing process by reducing surface tension. Soaping for 15 seconds with soap provides enough hygiene for daily life by removing the existing microflora, together with the dirt containing most of the lipids, together with the soap. The products here used to provide personal and environmental hygiene. In this study, we investigated whether the products affect the human skin microflora and some pathogen microorganisms.

Materials and Methods: The antimicrobial activity of the products was investigated in some Candida species isolated from pathogenic samples (*Candida albicans* ATCC 10231*, Candida utilis*ATCC 9950*, Candida glabrata*); Gram negative bacteria (*Pseudomonas aeruginosa*ATCC 35032*, Escherichia coli* ATCC 35218*, Klebsiella pneumoniae*ATCC 13882*, Enterobacter aerogenes*ATCC 13048*, Serratia marcences*ATCC 13880*, Salmonella typhimurium* ATCC 14028, *Proteus vulgaris*ATCC 33420; Gram positive bacteria (*Staphylococcus aureus* ATCC 25923*, Bacillus subtilis* ATCC 6633*, Micrococcus luteus*ATCC 9341*)*. Disk diffusion method was used and the resulting zone diameters were measured. Nutrient Agar and Malt Extract Agar were used for activation of bacteria and yeast, respectively. The cultures were incubated at 30-37ºC in overnight. The inoculum size of each group of bacteria and yeast were prepared by using a no. 0.5 McFarland tube. It was kept to solidify at room temperature for a while and then holes were made on top with a sterile stick. 0.1 g of the cleaning products was dissolved homogeneously in 5 ml of distilled water. These holes were filled with 50µl of cream samples. At the end of incubation time, the diameters of the inhibition zones formed on the Mueller-Hinton Agar was evaluated in millimeters.

Results: As a result of the study, antimicrobial activity was found in the products used. The highest antimicrobial activity was observed in shampoo, shower gel, surface cleaner and dishwashing detergent, while the least antimicrobial activity was; liquid hand soap, hand sanitizers. It was an unexpected result that the antimicrobial activity of the liquid hand soap we used most in daily life has the lowest effect. Because hand washing with hand soap is one of the cheapest and widespread hygienic measures to prevent infectious diseases it is more important to look at how the hands are washed, not with what. The observation of the highest antimicrobial activity in the dishwashing detergent was an important and expected result for the cleaning of many materials we use in everyday life.

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Keywords: Hygiene products, Antimicrobial activity, Disk diffusion method.