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Nail polishes: Uncommon fomites for the transmission of pathogenic fungi

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Abstract

Nail polish is composed of a complex combination of substances including resins, plasticizers, solvents, thixotropic agents, minerals and synthetic pigments and natural agents for color and shine. According to common belief, nail polish contains chemicals that would eliminate the possibility of microbial contamination. This study evaluates the survival of fungi in nail polish. Three different colors (base, red and white) of four brands were evaluated. After sterility control, nail polishes were contaminated with *Trichophytonrubrum, Trichophytonmentagrophytes, and Candida albicans* and *Candida parapsilosis* and inoculated in Sabouraud Dextrose Agar (DIFCO®). The survival of fungal species was verified over a 12-hour period, and in respect to possible chemical changes of nail polish, it was evaluated by repeating this contamination-testing procedure on Days 7, 14, 21 and 28 after opening the bottle. All fungal species survived in nail polishes. Fungal growth was evidenced on the first day, within 2 to 6 hours after the first inoculation. Independent of color and brand, higher growth rates were evidenced as the polish became older. Light colors - base and white – had a higher level of fungal inhibition (43%) than red polish (37%). These data show that nail polish can be considered a vehicle for the transmission of fungi. Individual biological characteristics of fungal must be considered to survive in nail polish. All kinds of beauty appliances should not be shared in order to prevent onychomycosis.

Biography

Margarete Teresa Gottardo de Almeidais biologist and received her Doctorate in Health Science, Medical Microbiology – Medical School of São José do Rio Preto City –São Paulo State- Brazil. She is manager of a Medical Mycology Laboratory developing researches with pathogenic fungal; Adjunct professor at FAMERP University, where she teaches a medical microbiology course on fungal and bacterial pathogens. Coordinator of two Post-graduation Courses in Medical Microbiology and Clinical Analysis (*lato sensu*), besides, she is professor of post- graduation courses (*stricto sensu*) in Bioscience Institute, Julio de Mesquita Filho University- UNESP. In the last 5 years, she has 21 publications (scientific journals and congress); recently she has developing projects with herbal products as potential inhibitory action against fungal cell.