

عنوان مقاله:

نانوذرات تیتانیوم دی اکسید به عنوان جزء رایج کرمهای ضدآفتاب: مطالعه تجربی ارزیابی ایمنی/سمیت

محل انتشار:

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خلاصه مقاله:

Background: The safety evaluations of sunscreens containing Titanium Dioxide-Nanoparticles (TiO₂-NPs) were done by dermal exposure, acute dermal and eye irritation/corrosion, and skin sensitization according to the guideline for Organization for Economic Co-operation and Development (OECD). OBJECTIVES: The aim of our study was the evaluation of safety and toxicity of TiO₂-NPs following acute sunscreen exposure. METHODS: TiO₂ and TiO₂-NPs (20-40 nm and 98% purity) were purchased in the anatase crystal phase, and five types of concentration for sunscreens were made which were carried out in five different treatment groups in mice and rabbits. RESULTS: In acute eye irritation using rabbits, the only irritation effect was observed in the conjunctivae area within one hour after administration both in TiO₂-NPs group and TiO₂-Ps. In acute dermal irritation using rabbits did not show a significant difference among groups in different concentrations and durations. Similarly, in a skin sensitization test using mice, contact hypersensitivity (CHS) did not show a significant difference ($P < 0.05$) among groups in 15% concentration of TiO₂ in the different durations after application. CONCLUSIONS: Our finding demonstrates that TiO₂-NPs and TiO₂-Ps in sunscreens are relatively safe and did not induce statistically significant eye and dermal irritation and skin hypersensitivity

کلمات کلیدی:

Dermal irritation, Eye irritation, OECD, Skin sensitization, TiO₂-NPs

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