Introduction

Ultrasound (UV) filters are used in sunscreens formulations with the aim to reduce the deleterious impact of the UV radiation on the skin by absorbing, reflecting or dispersing UV radiation.\(^1\),\(^2\)

Aim

Characterization of the sunscreens commercialized in pharmacies in the Portuguese market in 2021, in particular the frequency of use of UV filters.

Methodology

The analysis of labels of sunscreens from 45 manufacturers (n=466) marketed in pharmacies in Portugal was carried out. The information was categorized in relation to frequency of use of UV filters, SPF, category of UV filter (organic/inorganic; UVA/UVB) and the form of presentation. All UV filters presented in this study are allowed in cosmetic products in accordance with Annex VI of the Regulation 1223/2009.\(^3\)

Results

Twenty-three different filters were used in the sunscreens analyzed. The most used UV filter was Butyl methoxydibenzoylmethane (UVA), used in 71.7% of the test products, followed by Octocrylene (UVB, 45.7%), Bis-ethylhexyloxyphenyl methoxysphenyl triazine (Tinosorb S, UVA, 44.2%), Ethylhexyl triazone (UVB, 37.7%) and Ethylhexyl salicylate (UVB, 35.4%). Titanium dioxide (nano), an inorganic filter, occupied the 6th place (23.2%) whereas the correspondent non-nanomaterial form was in 14th place (8.2%).

Fig. 1: Frequency of use of the different filters in adults sunscreens

Fig. 2: Frequency of use of the different filters in children's sunscreens

Fig. 3: Frequency of use of different forms in adults sunscreens

Fig. 4: Frequency of use of different forms in children's sunscreens

Fig. 5: Association of UV filters in adults sunscreens

Fig. 6: Association of UV filters in children's sunscreens

Fig. 7: SPF in adults sunscreens

Fig. 8: SPF in children's sunscreens

Conclusion

The data collected allows characterizing the true market impact of approved UV filters. Differences were noticed regarding the composition of UV filters in sunscreens for adults vs for children which reflect the purpose to minimize skin sensitization risk in children. This insight is also relevant for the assessment of environmental risks, such as those associated with the presence of UV filters in aquatic ecosystems.

References

