ABSTRACT

An in-vitro human skin absorption study was conducted on the fragrance material Dimyrcetol®, which is a mixture of 2 components, 2,6-dimethyl-7-norborn-2-enyl acetate (Dimyrcetol A) and 2,6-dimethyl-7-norborn-2-enyl ethyl ether (Dimyrcetol B). Atkinson et al.'s SCCNFP (2003) study calculated the total Dimyrcetol® absorption. Skin permeation and distribution were determined using epithelial membranes from cosmetic surgery donors. Skin membranes were mounted into Franz-type diffusion cells and the stratum corneum side was faced towards the donor compartment containing a concentration of 0.4% (v/v) EtOH: water (1:1) at a dose of 296.2 µg/cm² (both occluded and unoccluded). The applied doses (mean ± standard error, SE) for Dimyrcetol® in vitro was 296.2 µg/cm² (both occluded and unoccluded), 5 µl/cm² and 100 µg/combination 5 (µl/cm²). Two compartments (donor and receptor) were separated by a dialysis membrane (22.5±2.2% of the applied dose). Higher absorption was observed under occluded conditions, however under unoccluded conditions, epidermal membranes filter paper supports were also dissolved in solvent. The diffusion cell (donor chamber) and control (e.g., mock-dosed) were secured onto small filter paper membrane supports and receptor fluid was combined to produce a total absorbed dose value. Under unoccluded conditions, dimyrcetol A was detectable on the dosed PTFE surface at 2 h. The higher recovery of dimyrcetol B than A may have undergone evaporation from the skin surface and subsequent loss through donor chamber sealing grease.

RESULTS

Dimyrcetol® (CAS No. 19979-98-8) is a mixture of 2 components, 2,6-dimethyl-7-norborn-2-enyl acetate (Dimyrcetol A) and 2,6-dimethyl-7-norborn-2-enyl ethyl ether (Dimyrcetol B). As Dimyrcetol® is approached, it is broken into two principal olfactory notes, the lower note being a woody, sandalwood type and the upper note being a crisp, green pudica note. The lower note has a woody, balsamic, sandalwood type aura while the upper note has a crisp, green pudica note. The lower note is mainly absorbed under both unoccluded and occluded conditions. Overall recovery of Dimyrcetol® at 24 h was 2.36 ± 0.24% (unoccluded) and 22.5 ± 2.1% (occluded). Recovery of Dimyrcetol® at 24 h was evaluated using GC-MS and used to determine the absorption of each Dimyrcetol® component (A and B) and total recovery. Overall dimyrcetol A and B were detectable on the PTFE surface, with greater levels of dimyrcetol A being absorbed under both unoccluded and occluded conditions. The recovery of Dimyrcetol® and control groups were 296.2 µg/cm² (both occluded and unoccluded), 5 µl/cm² and 100 µg/cm² (combined 5 µl/cm²). Dimyrcetol® may have undergone evaporation from the skin surface and subsequently lost through donor chamber sealing grease.

DISCUSSION

The distribution of Dimyrcetol® within the strata skin was determined by measuring levels of Dimyrcetol® within the stratum intermedium (both sides of the stratum corneum) or the stratum corneum. The amount of Dimyrcetol® in the stratum intermedium (both sides of the stratum corneum) was assessed using spiking studies. One active cell and one control were spiked by the addition of an aliquot of calibration solution and another active cell and control were spiked with 20 mm diameter filter paper supports and ~1.2 cm

REFERENCES