

Synthesis Of Iminosulfuranes as Dermal Penetration Enhancers

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Drug delivery via skin penetration is becoming more popular and sought as a safe method of treating any subcutaneous ailment. Dimethyl sulfoxide was originally used as a potent transdermal agent to deliver drugs due to its colorless nature and strong penetration across the skin. Its high toxicity at high concentrations proved to be harmful after extended use. Iminosulfuranes, analogues of dimethyl sulfoxide, may be possible transdermal penetration enhancers. They are cosmetically laudable and have low toxicity at various concentrations. *p*-substituted iminosulfuranes, such as bromo, chloro, and fluoro iminosulfuranes, were synthesized in excellent yield. NMR spectroscopy was used to confirm the product. Mechanistic studies, including nuclear Overhauser effect spectroscopy, biological assays, and binding affinity studies were performed on the iminosulfuranes. It was found that the bromo-derivative had the greatest flux across the epidermis and delivered the most amount of the drug across a unit area, thus posing as a possible transdermal penetration enhancer.