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Influence of extraction solvent in determination of selected corticosteroids in herbal dermatological productsSnježana Zubčić¹, Martina Matičević², Siniša Tomić¹ and Rajka Truban Žulj¹¹Agency for Medicinal Products and Medical Devices of Croatia, Croatia²University of Zagreb, Croatia

The use of herbal products has significantly increased in recent decades. One of the main factors leading to this trend is that consumers assumed that use of herbal products is safer and natural alternative to traditional medical treatments. It has been found that many of such so called natural products have been counterfeited by addition of active pharmaceutical ingredients. One of the groups of products of our interest was herbal dermatological products. The aim of the study was to find the most appropriate extraction solution for the best recovery of added synthetic corticosteroids in topical preparations before assay determination by chromatographic method. Four different extraction solutions were used and nine corticosteroids were determined, namely: alclometasone dipropionate, betamethasone dipropionate, betamethasone valerate, dexamethason, hydrocortisone acetate, clobetasol propionate, methylprednisolone acetate, mometasone fuorate and triamcinolone acetonide. For that purpose, validated analytical chromatographic method was used that was developed previously for assay determination of above mentioned compounds. Results show that 0.1% V/V acetic acid in methanol is the most appropriate extraction solution for 4 compounds namely, alclometasone dipropionate, clobetasol propionate, mometasone fuorate and betamethasone dipropionate. Further, it can be seen that methanol gave the best recovery for 3 compounds - betamethasone dipropionate, mometasone fuorate and hydrocortisone acetate, and also acetonitrile was the best choice for 3 compounds - methylprednisolone acetate, betamethasone valerate and dexamethasone. Finally, in ethanol as extraction solution only 1 compound had the best recovery, triamcinolone acetonide. It can be seen from all of the obtained results that the best compromise extraction conditions, if one would like to extract most of above mentioned corticosteroids, would be accomplished by using acetonitrile as the extraction solution. Following acetonitrile, second choice for extraction more than half of mentioned corticosteroids would be both methanol or 0,1 % V/V acetic acid in methanol. The results suggest that addition of acetic acid changes the type of compounds that are extracted and efficiency of extraction procedure.

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