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ABSTRACT
Nanofiber membranes as carriers of drugs 4.
Polyethylentetrafluotethylene, polyamide 6/12, polyaramide,gelatine.

The last decade brought development of many new interesting technologies. Electrospinning of polymers belongs to them and unwoven nanomembranes are the product. We worked with the samples of unwoven nanomembranes obtained within a frame of co-operation of the Department of pharmaceutical technology and Elmarco Co. Ltd. Liberec. The results obtained are a part of a primary application study and unwoven nanomembranes properties for topical and sublingual application.

I was engaged in evaluation of four unwoven polymer nanomembranes made from polyethylentetrafluorethylene, polyamide, polyaramide and gelatine. Membranes were impregnated with 3 % nimesulide in the suspension and gel (Coxtral, Aulin) in the in vitro transdermal permeability study using the diffusion cells of area 1cm^2 or 2 cm^2 of active skin area and 400 mg amount of suspension, respectively 0,3 g of a gel. The samples of acceptor phase were withdrawn at suitable the time interval from 11,5 to 59,5 hour and then evaluated with HPLC.

The other properties of unwoven nanomembranes, namely contact angle, soaking capacity and tensile strength examinations.

From the permeation studies, result show that nimesulide from the membranes of polyamide and polyethylentetrafluorethylene absorbs more fast, while polyaramide and gelatine membranes absorbs the drug in the less extent, and they posesses more sustained action. Nimesulide releases and impregnates these membranes less constantly from the Coxtral than from the Aulin gel preparation.

It was evaluated further, that all unwoven nanomembranes show bad surface wettability, which is not surprising for the polyethylentetrafuorethylene membrane but it is somewhat strange in the case of the gelatine ones.

The results of the soaking capacity for buffer show that unwoven nanomembranes behave as hydrophobic, whereas polyaramide accepts water the best.

The result of tensile-tension examinations are that nanomembranes are more tough, if they are not sterilized by radiation. An only exception is polyethylentetrafluorethylene, which more mechanically resistant is after radiation sterilization.