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Formulation and Characterization of Resiquimod Microsponges Loaded Gel**H Hadi, A Zaiter, A I Awadh***Faculty of Pharmacy, International Islamic University Malaysia, Kuantan, Pahang, Malaysia*

The aim of this study was to incorporate microsponges loaded with resiquimod in gel dosage form. Microsponges were prepared by emulsion solvent evaporation method using dichloromethane (DCM), ethylacetate (EA), and chloroform in dispersed phase which were incorporated into different gels. 0.5% w/w Carbopol® 934 (polyacrylic acid) powder was dispersed into deionized water under constant stirring with a glass rod. 0.2% and 0.02% w/w of methylparaben and propylparaben were used as preservative in the gel. The dispersion was neutralized using 10% sodium hydroxide (2% w/w). Topical microsponges gel formulations were prepared by incorporation of microsponges into the gel. A 0.03% w/w of resiquimod loaded microsponges was incorporated into the gel. Control gels which contained resiquimod only were prepared under the same conditions. Microsponges prepared by 2.5 mL of DCM, 1 mL of chloroform or 5 mL of EA in the dispersion phase were selected and coded as F1, F2 and F3. To study the compatibility of gel excipients along with microsponges, Attenuated Total Reflectance – Fourier Transform Infrared (ATR-FTIR) spectroscopy and FESEM microscopy were used. The ATR-FTIR spectrums of different formulations (F1, F2, and F3) are identical. F4 spectrum which contained empty microsponges loaded gel had no additional or missed peaks when compared against spectrums of other formulations. The integrity and surface morphology remained similar when compared to original microsponges observed under FESEM microscopy. Therefore, it can be concluded that there was no chemical interaction between resiquimod-loaded microsponges and gel excipients as shown in ATR-FTIR spectrum and FESEM microscope.