

Effects of the Polysorbate 60 and Laureth-7 Mixtures as a Non-ionic Emulsifier in O/W Emulsion

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ABSTRACT

The formulation of the O/W tendon slacker emulsion containing the capsaicin crude as an active ingredient was prepared *via* a phase inversion technique. The water phase (>80% content) was slowly poured into the oil phase at 70-80 °C with continuous stirring. Two kinds of surfactants, the polysorbate 60 mixture (polysorbate 60/hydroxyethyl acrylate - sodium acryloyldimethyl taurate copolymer and isohexadecane) and the laureth-7 mixture (polyacrylamide/C13-14 isoparaffin/laureth), were used as a non-ionic emulsifier. Consequently, a percentage of the polysorbate 60 mixture was increased in a range of 1.4-2.0% to affect the viscosity of emulsion to be slightly increased. In the mean time, using more than 2% of the polysorbate 60 mixture showed no effect on viscosity and pH. For the formulation composing of the laureth-7 mixture (0.5-2.0%), the emulsion was a cream which was more viscous than when the polysorbate 60 mixture was used at the same percentage without changing in the pH value. The emulsion containing the polysorbate 60 mixture at 2.2% would have sufficient quality to be acceptable to use as a lotion due to a small separation after centrifuge at 5,000 rpm for 30 min at room temperature and no contamination. The lotion was tested by a group of people who answered a 3-Heidonic scale satisfaction questionnaire with an opening comment on viscosity, permeation into skin and texture of the lotion. The result showed the objective sampling to be an average of 2.7.

Keywords non-ionic emulsifier; polysorbate 60; laureth-7; O/W emulsion