

Abstract

Capsaicin, the active ingredient in *Capsicum frutescens* L., has been proposed for the treatment of some painful conditions such as osteoarthritis, painful diabetic neuropathy and psoriasis. The objectives of the present study was to develop the topical solution formulations of capsaicin.

In this study, capsaicin in the concentration of 0.025% w/w was used. The topical solution formulations were evaluated for their physical properties such as turbidity, viscosity, pH and dispersibility on the skin for five weeks. The results showed that the solution with 0.2% w/w carbopol 940 as thickening agent gave the suitable viscosity (2,000–2,500 cps.) and pH (6.5–8.0) for topical solution.

The effects of additives such as menthol and camphor on the adverse drug reactions were also investigated. In 40 healthy volunteers, the adverse drug reactions of 0.025% capsaicin solution with 1% menthol were compared to placebo, 0.025% capsaicin solution with 1% menthol and 1% camphor and to 0.025% capsaicin gel. A 0.1 ml sample of each preparation was applied to a 1 squared inch area to the dorsum of the hand, with at least 24 hours interval between application of each preparation. Assessments of burning sensation were performed by using visual analogue scale. Adverse drug reactions reported in this study included burning, erythema and itching. With all 3 preparations of topical capsaicin, all adverse drug reactions were least reported when 0.025% capsaicin solution with 1% menthol was given to the subjects.

These results show that a capsaicin topical solution with 0.2% carbopol 940 as thickening agent and 1% menthol as cooling agent is the most suitable preparation when compared with the other formulations in this study.