Stable CMC Gel Formulations for Extemporaneous Preparations in Community Pharmacy

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Abstract:
Preparing stable CMC gel preparations is a challenging issue in extemporaneous preparations. Such products may be formulated according to physician prescription in different conditions such as skin eczema, skin fungus, psoriasis, seborrhea dermatitis and etc. Although solutions are more common in contemporary pharmacy, gel preparations offer some advantages such as long exposure time and consequently more effectiveness. Aims: Inappropriate CMC gel preparation leads to low patient compliance and less effectiveness. The aim of this study is to introduce an easy and also fast preparation method along with a stable formulation to be followed in contemporary pharmacy. Method: In this study, a common dermatologist prescription containing salicylic acid in gel formulation CMC (Carboxyl methyl cellulose) was evaluated as a model formulation. CMC gel preparation was prepared by three different methods: soaking, magnetic stirring and ultrasound assisted dissolution. Refraction coefficients of prepared formulations were studied during predetermined time intervals using refractometry technique. Refractive index coefficients of prepared formulations were studied during predetermined time intervals using refractometry technique. Drug incorporation was performed using alcohol as a solvent. Stability assessment was done using UV spectroscopy. Results and discussion: refraction coefficient of a 2% CMC gel base was 1.157. Obtained results suggested that formulations are stable after 33 days. The most rapid and easy method applicable in contemporary pharmacy was introduced as soaking in hot water and then adding the rest of the water in a semi hot temperature using a low speed magnetic stirrer. Conclusion: A stable formulation and an applicable method were introduced to be utilized in extemporaneous preparations based on CMC gel.

Keyword: Contemporary Pharmacy, Extemporaneous Preparations, CMC, Gel