



Ketoprofen transdermal emulgel system formulated with *Aloe vera* gel base

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1. BACKGROUND

Plant *Aloe vera* offers numerous medicinal values and exhibit penetration enhancement properties. Emulgel is a combined dosage form of emulsions and gels. Ketoprofen, hydrophobic drug can be delivered through the skin.

2. OBJECTIVES

To formulate an anti-inflammatory emulgel system using *Aloe vera* gel-base.

3. METHODS

Gelling component was extracted from fresh *Aloe vera* leaves. The gel was prepared by mixing *Aloe vera* gel extract with carbopol 940. Tween 20 and Tween 80 were used as emulsifiers. The strength of all Ketoprofen gel formulations was 2.5% w/v. The Emulgels were prepared using various combinations of carbopol and *Aloe vera* extract. Sesame oil used as a permeation enhancer. Methyl paraban and propyl paraben used as preservatives. Prepared Emulgels were evaluated in terms of physical parameters (pH, Viscosity, spreadability), UV absorption, microscopic appearance and accelerated stability.



5. CONCLUSIONS

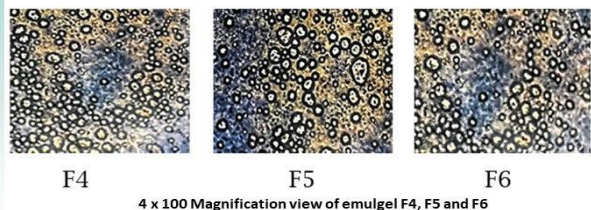
Ketoprofen emulgel formulations (F4, F5, F6) were stable with respect to physical parameters and microscopic appearance. The optimum formula of Ketoprofen emulgel needed to be selected after conducting real-time stability studies.

4. RESULTS

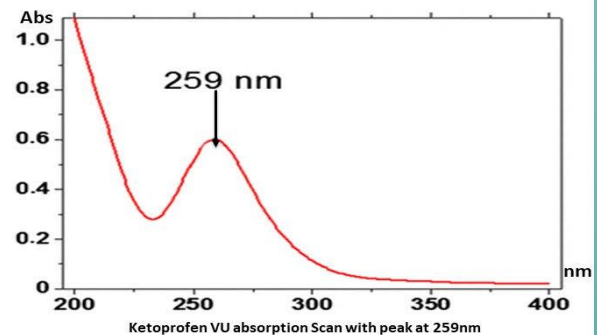
Percentage yield of *Aloe vera* gel extract was $34.0 \pm 2.5\%$ w/w.

Out of 6 formulations, three formulations (F4, F5, F6) was acceptable with base on following parameters, pH = 5.71 ± 0.0093 , Viscosity = 6160 ± 675 cps, Spreadability = 11.5 ± 0.54 g.cm/sec.

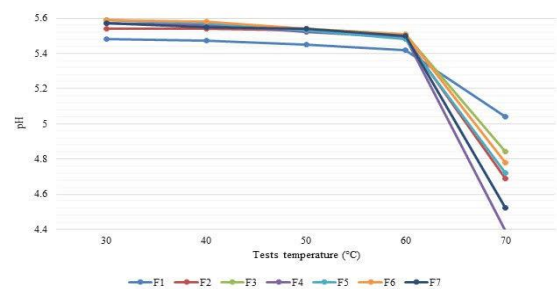
Microscopic evaluation of emulgel was shown as oil in water (O/W) type emulsion entrapped in a gel matrix.



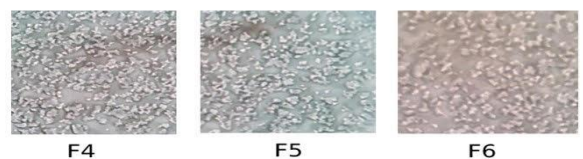
UV absorption was at 259 nm λ_{max} .



Accelerated stability study proved the emulgel was stable up to 60°C in terms of pH.



Temperature vs pH values variation of ketoprofen emulgel formulations



F4, F5, F6 After accelerated stability tests at 70°C - 4x100 Magnification (Phase separation Occurred)