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Formulation and Evaluation of oral suspension for treatment of Giardia infestation.

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ABSTRACT :
In the present work, an attempt was made to formulation and evaluation of oral suspension for treatment of giardia infestation using lauric acid, carboxyl methyl cellulose sodium, xanthan gum, HPMC, span 20, glycerin, methyl paraben, propyl paraben. Firstly characterization of lauric acid and excipients are done. After characterization of formulation and evaluation of suspension are done. The result of this study showed that lauric acid can be formulated as an oral stable oral suspension. Formula SXG3 was the best formula since it showed good release rate , optimum sedimentation volume in addition to being easily dispersed.
Keywords : G. Lamblia, oral suspension, Lauric acid.

INTRODUCTION :

Giardiasis is caused by protozoan parasite giardia lamblia. It is the common protozoal infection in humans occuring instantly in urban countries. Mostly occur in warm climate. G. Lamblia was first described in 1681. Giardia exist in cyst and trophozoite forms. 1 G. Duodenalis transmitted through fecal contamination from person to person. Direct observation test is the identification test of trophozoites and cysts.2 A main challenge to formulation of suspension is the settling i.e. separation of insoluble solid insoluble drug from the vehicle. Various properties os Pharmaceutical suspension for oral use include redispersibility.

Major constituents for preparation of oral suspension :

1. Wetting agent
2. Vehicle
3. Suspending agent and viscosity modifier
4. Preservatives 3,4.

Advantages of suspension as a drug delivery system :

1. Unstable and degradable drugs easily administered in solution form.
2. If drug is water insoluble then suspension is substitute for this.
3. Excellent method for drugs having unpleasant taste and odour.
4. Bioavailability is more as compare to tablet and capsules.
5. Controlled rate of delivery in injections- Intra muscular, sub cutaneous.5,6,7.

MATERIAL AND METHOD :

Justification :-

A) Justification for selection of lauric acid for oral delivery -

- ❖ Official in BP, hence the standards for identity, purity and quality are established.
- ❖ Reported to increase death of trophozoites.
- ❖ Self acting suspending agent.

B) Justification for selection of dosage form :

- ❖ Lauric acid occur in large insoluble crystals.
- ❖ Enhanced bioavailability, fewer side effects compared to the tablet and capsule.

C) Justification for selection of excipients :

1) Justification for selection of suspending agent.

❖ Carboxyl methyl cellulose sodium
- Imparts stability to suspension
- Mostly used in oral Pharmaceutical formulations, primarily for suspending and viscosity increasing properties.
- water dispersible

❖ Xanthan gum
- Reported as a suspending agent and viscosity modifier for oral formulations.
- Non toxic, compatible with formulation ingredients.

❖ Hydroxy Propyl Methyl Cellulose
- Useful at 1 to 2 % for suspension.
- Reported as a suspending agent and viscosity modifier for oral formulations.

2) Justification for selection of thickening agent.

❖ Glycerin
- Thickening agent, vehicle, sweetener
- Compatible with formulation ingredients.

3) Justification for selection of wetting agent :

❖ Sodium monolaurate
- Compatible with formulation ingredients

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- wetting agent in oral suspension, Pharmaceutical formulations, at concentration of 1 to 2.5 %w/v.

4) Justification for selection of preservatives :

❖ Parabens

- commonly used as an antimicrobial preservative in Pharmaceutical formulations.
- Reported for use either alone or in combination with other parabens or with other antimicrobial agents. 8