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# Formulation And Evaluation Of Oral Ibuprofen-Paracetamol Jelly On Laboratory Scale

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***Abstract***

Oral medicated buprofen paracetamol jellies are best semi solid dosage forms administered through the oral route. Oral medicatedibuprofen paracetamol jellies provide several advantages as pharmaceutical formulations however with some disadvantages like Dysphagia. Oral medicated jellies as a dosage form can be adopted laboratory equipmentfor drug delivery system. Oral solid dosage forms were the most preferred dosage forms for a wide range of populationin elderly and 12 years and above age patient due to they easy to administration. Solving difficulties and Dysphagia problems are the main disadvantages which can minimize as possible. The ultimate purpose for this formulation is to introduce opportunities of providing the oral jelly as a suitable alternative to the readily available solid dosage forms of the same medicament.

***Keywords – Dysphagia, Oral jelly, ibuprofen, paracetamol, administration.***

## INTRODUCTION:

Jelly is an transparent or translucent non-greasy, semisolid preparations meant for external as well as internal application. [1][2][15] . Dysphagia is a medical term originated from the Greek words dys, meaning "difficulty", and phagia, meaning "to eat''. To avoid dysphagia in any age group persons. The formation and evaluation of jelly is effective in the condition of dysphagia.Convenience of administration and patient compliance are gaining significant importance in the design of dosage forms. Paracetamol and ibuprofen is an orally administered antipyretic and analgesic agent, used in the management of pyretic and analgesic condition. Difficulty in swallowing (dysphagia) is common among all age groups, especially in elderly and pediatrics. Persons suffering dysphagia may get choked when they consume liquid formulations, thus to alleviate such problem liquid formulation of high viscosity were prepared. Formulation of oral ibuprofen Paracetamoljelly. The main advantages in oral jellies possess certain advantages such as improving the bioavailability by reducing first pass effect since it is introduced to the GIT as dissolved in the saliva, in addition to its higher patient acceptance and compliance due to its rheological behavior and its suitability of administration at any time and place without the requirement of water[6] The jelly dosage form not only overcomes the disadvantages of solids dosage form, but also of liquid dosage forms. The aim of the present study was to improve patient

compliance by development of jelly preparation of an orally administered (Ibuprofen paracetamol jelly) used in treatment of fever and pain and reducing the condition of dysphagia. Apart from that jelly preparation also helps to control over harshness and bitterness of drug. So we can say it as patient friendly dosage form.[1][2][14]

## EXPERIMENTAL:

## MATERIALS AND METHODES:

| Sr. No. | Ingredient/Excipient | Each 4 gm Contain | Uses |
|---|---|---|---|
| 1 | Ibuprofen | 150 mg | Analgesic & NSAID (API) |
| 2 | Paracetamol | 300 mg | Antipyretic &NSAID (API) |
| 3 | Gelatin | 400 mg | 400 mg |
| 4 | Sucrose | 800 mg | Sweetener and bulk former |
| 5 | Sodium Saccharin | 0.05 mg | Sweetener |
| 6 | Methyl Paraben | 0.05 mg | Preservative |
| 7 | Glycerine | 3-5 ml | Stabilizer |
| 8 | Strawberry flavour | Quantity sufficient | Flavouring agent |
| 9 | Tartrazine | Quantity sufficient | Colouring agent |
| 10 | Water | Quantity sufficient | Solvent |

**Preparation of oral Ibuprofen Paracetamol jelly:**
Clean and sterilize all requirement, should be place in aseptic room. 4gm Gelatin should be accurately weighed then dissolve in 25-30ml volume of distilled water at 95 ˚ C for 20-30 minute. Make a simple syrup with dissolving a 8gm sucrose into 4-5ml water at 75-80 ˚ C ,with continuous stirring. Then adding sugar syrup to above mixture at 70-75 ˚ C ,with continuous stirring. Make a slurry of API by mixing 3-5ml glycerin into ibuprofen and paracetamol. Then adding slurry with preservative, stabilizer, flavoring agent, coloring agent etc, with continuous stirring. [1][6][8][15]

## RESULT AND DISCUSSION:

**Challenges in the Formulation of the Oral Jellies**
Several challenges occurred in the formulation of the oral jellies, these may include:

**1. The amount of drug/Drug contain**
In the formulation of oral ibuprofen paracetamol jellies the amount of drug in a single dose difficult to measure depending on amount of active drug there are three challenges including taste masking of the active ingredient, jelly size and mouth feel or grittiness.[1][8][9]

**2. Taste masking:**- In oral administration taste masking is the important parameter, the desirable taste is the better choice for pediatrics .
Types of taste - 1. Bitter, 2. Sweat, 3. Salt, 4. Sour.

**Reduction bitter taste of drugs**
Maintain the pH as pH of saliva and uses flavors and sweeteners.[3][5][10]

**3.Jelly size:-**
The size of jellies is between 5mm-8mm,which can easy to eat in any age group.[1][9][14]

**4.Mouth feel**
The Oral medicated jellies should not disintegrate into the oral cavity.
Using flavors and cooling agents like menthol improve the mouth feel.[3][5][7][10]

**5.Aqueous solubility**
The aqueous solubility of drug can causes many challenges like depression in freezing point of oral jellies. which they form eutectic mixtures.[1][11]

**6.The drug property**
Certain properties such as crystal morphology, particle size, solubility and bulk density could affect the jelly performance.[9]

**7.Environmental Sensitivity**
Oral jellies are sensitive to environmental temperature and humidity,for this reason special packaging should be applied. Melting of jellies can be avoided by special store in freezer or deep freeze.[1][2][8][15]

**Evaluation of oral ibuprofen paracetamol jelly**.
Following studies were carried out for evaluation of oral ibuprofen paracetamol jelly.

**1.General appearance**
Texture and clarity of the oral jellies was evaluated in terms of stickiness and grittiness by mildly rubbing the gel between two fingers. Consistency and odour were also evaluated by physical observation. Color is observed by general appearance.[1]

**2.Disintegration time**
The disintegration time of the jelly can be determined by the disintegration test apparatus with using Phosphate buffer.[1][13]

**3.Viscosity**
Viscosity had been measured using digitalviscometer. The spindle no. 4 was used fordetermination of viscosity NonNewtonian fluids.[1][11][13]

**4.Stickiness**
It is determined by rubbing the jelly between two fingers and then stickiness is checked visually.[8]

**5. pH**
It is determined by the electronic pH meter. The pH of the oral jellies is between 6.5-7.[1][15]

**6. Sterility study:-**
These studies are important parameter for determining the microbial profile of jellies. As jellies are more prone to microbial growth due to presence of water. These study done by direct inoculation method of culture media. [4]

## EVALUATION :-

| Sr.No. | Evaluation | Observation |
|---|---|---|
| 1 | General appearance | |
| | Colour | Red |
| | Teast | Sweat |
| | Odour | Characteristic ( aromatic) |
| | Shape | Rectangular |
| | Average size | 1.5 cm |
| | Texture | smooth |
| | Clarity | Partially transparent |
| 2 | Aqueous Solubility | Good soluble |
| 3 | Disintegration time | 2 minute. |
| 4 | Viscosity | 321480 cP |
| 5 | Stickiness | Non sticky |
| 6 | pH | 6.70 ±1 |
| 7 | Sterility study | Sterile |

## CONCLUSION:-

The formulation and evaluation of an oral ibuprofen paracetamol jelly give a suitable drug delivery system. It making it a good substitute over the readily dosage forms for administration to dysphagic populations. Further studies are required to discover the various applications, good of this dosage form and to determine the possible ways to improve its stability.

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