

AN OVERVIEW ON PHARMACEUTICAL AND NUTRACEUTICALS ORAL MEDICATED JELLIES (OMJS)

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ABSTRACT

Oral medicated jellies are a novel dosage form that has gained increasing popularity in recent years due to their unique properties and potential therapeutic benefits. These jellies are formulated as semisolid preparations that can be easily administered to patients, especially children and elderly individuals, who may have difficulty swallowing traditional oral dosage forms. The development of oral medicated jellies has been driven by the need to improve patient compliance and convenience, as well as the desire to enhance drug efficacy and safety. These jellies offer several advantages over other dosage forms, such as improved bioavailability, rapid onset of action, and reduced gastrointestinal irritation. Oral medicated jellies can be formulated with a wide range of active pharmaceutical ingredients, including antibiotics, analgesics, antihistamines, and anti-inflammatory agents, among others. They are also available in various flavours and colours, which can improve palatability and encourage patient acceptance.

However, the formulation of oral medicated jellies presents several challenges, such as the need to maintain stability and homogeneity, as well as the potential for microbial contamination. To address these issues, innovative formulation strategies and manufacturing processes have been developed, including the use of stabilizers, emulsifiers, and preservatives.

In summary, oral medicated jellies are a promising dosage form that has the potential to revolutionize the pharmaceutical industry. They offer several advantages over traditional oral dosage forms and can be formulated with a wide range of active pharmaceutical ingredients. However, further research is needed to optimize their formulation, manufacturing, and clinical application.

I. INTRODUCTION

It is observed that kids refused to use oral pharmaceuticals medicines such as suspensions, emulsions, syrups etc. due to their inappropriate taste, appearance, viscosity, odor, and the psychological perception about medicines use. So, to overcome these issues, medicinal drugs should be administered in different pediatric doses among which Oral medicated jellies (OMJs) is mostly accepted by kids due to its taste and appearance likes chocolate jellies. Now-a-days, jelly candies have become very common in children as they enjoy chewing the jelly and it may use as a preferable method for drug administration as it is alternative to solid and liquid dosage form. The use of medicated jelly is applicable for treating both localized oral cavity ailments and systemic conditions. Soft chewable dosage forms can be used to formulate drugs with an unpleasant taste, such as erythromycin, acetaminophen, aspirin, ibuprofen, as well as antacids, minerals, and vitamin supplements. As per the 17th edition of the Japanese Pharmacopoeia, jellies are specific non-flowable preparations that come in a gelatinous form with a predetermined size and shape, intended for oral administration. "Jelly can be defined as transparent or translucent non-greasy, semisolid preparations meant for external as well as internal application". Drugs which have rapid onset of action, whose main absorption site is stomach and small intestine can be formulated as jelly. There are three types of jellies such as Medicated jelly, Lubricating jelly, and Miscellaneous jelly.

Oral Medicated Jellies (OMJs) = To fulfil the medical needs, pharmaceutical technologists have created Oral Medicated Jellies (OMJs) that dissolve quickly in saliva, usually within seconds, without the need for water, to meet medical requirements. Conventional dosage forms may not exhibit drug dissolution and absorption, onset of clinical effect, and drug bioavailability as significantly as those seen in other forms. Oral Medicated Jellies have been found to be the choice for Psychiatric and patients suffering from stroke, thyroid disorder, Parkinson's diseases and multiple sclerosis, nausea, vomiting and motion sickness. Currently, only OMJs are acknowledged by FDA as a rapid-disintegrating medication type, and they are listed in the Orange Book, which is also known as Approved Drug Products with Therapeutic Equivalence Evaluations. Children who have lost

their primary teeth but do not have full use of their permanent teeth can easily use OMJs. The drug released by OMJs is absorbed by passing through the local oromucosal tissues and various segments of the gastrointestinal tract (GIT), including the oral cavity, pharynx, and oesophagus (pregastric), stomach (gastric), and small and large intestines (post gastric).

Ideal characteristics of oral medicated jellies = Important desirable characteristics of these dosage forms include no water requirement for swallowing purpose but it should dissolve or disintegrate in the mouth usually within fraction of seconds.

1. Compatible with taste masking.
2. Exhibit low sensitivity to altered environmental conditions such as humidity and temperature.
3. Allow high drug loading.
4. Be portable without fragility concern.
5. Leave negligible residue in the mouth after oral administration.
6. The drug and excipients property should not affect the orally disintegrating jelly.
7. Effective taste masking technologies should be adopted for bitter taste drugs.

Jellies Compared to Liquid Formulations [1] = Paediatric oral formulations can be scientifically challenging to develop. The prerequisites for both a measurable dosage form based upon bodyweight and taste-masking are two of the challenges unique for paediatric oral formulations. Most oral dosage forms contain active pharmaceutical ingredients (APIs) that have a bitter taste. Most paediatric preparations are syrups and suspensions, making taste masking of liquid formulations a significant challenge. However, taste masked drug delivery research is becoming increasingly crucial and commercially successful, particularly for children who are suffering.

Conversely, jellies could potentially address many of the drawbacks of liquid dosage forms. With a higher viscosity than liquid preparations, jellies have an advantage in taste masking. Paracetamol was formulated by M.C Gohel in the form of oral jelly, referred to as gel in their publication. The human volunteers who evaluated the paracetamol jellies found them to possess acceptable sensory characteristics. This is noteworthy because paracetamol is commonly known for its extremely bitter taste. Jelly volumes exceeding 10 ml may be effortlessly administered by paediatrics, hence controlled release is more feasible in jelly formulations compared to liquid formulations.

II. ADVANTAGES

The performance of oral medicated jellies depends on the technology used during their manufacture.

1. For those who don't always have access to water, such as disabled or bedridden patients, travellers, and busy individuals, oral medicated jelly is the most convenient option.
2. Rapid onset of action.
3. Cost effective.
4. Suitable during traveling where water may not be available.
5. Conventional manufacturing equipment.
6. Oral medicated jelly can be administered to the patients who cannot swallow tablets/capsules, such as the elderly, stroke victims, patients with oesophageal problems & patients who refuse to swallow such as paediatric, geriatric & psychiatric patients and thus improves patient compliance.
7. OMJ is most convenient for disabled, bedridden patients, travellers and busy people, who do not always have access to water.
8. It contains the certain studies which concluded increased bioavailability and the swift absorption of drugs through pregastric pathways is confirmed, as drugs from the mouth, pharynx, and esophagus are carried down by saliva.
9. Adaptable and amenable to existing processing and packaging Machinery.
10. It is convenient to administer – anywhere, anytime, doesn't require water.
11. The pleasant texture of jellies can alter the way medication is perceived.
12. Conventional oral solid dosage forms have good chemical stability.

III. DISADVANTAGES

1. Due to its aqueous nature, the preparation requires suitable packaging to preserve the drug's stability in diverse environments.
2. It may lead to unpleasant taste if not formulated appropriately.
3. Additionally, it demonstrates the delicate and bubbly nature of the granules.
4. Lack of physical resistance in standard blister packs.
5. Due to its hygroscopic nature, oral medicated jelly should be stored in a dry place.
6. It requires special packaging for properly stabilization & safety of stable product.

Complication arise while formulating Oral Medicated Jellies [3]

1) Drug property: Some drug properties potentially affect the performance of jellies and some drugs are not stable in gels form. For e.g., solubility, crystal morphology, particle size and bulk density of a drug can affect the final jelly characteristics, such as jelly strength and dissolution.

2) Dose/Amount of drug: Due to inappropriate formulation process dose variation can occurs.

3) Size of jelly: The ease of consuming a jelly is influenced by its size. It has been reported that the easiest size of jelly to swallow is 78mm while the easiest size to handle was one larger than 8 mm. The je Achieving a jelly size that is convenient to take and manage is challenging.

4) Hygroscopicity/Moisture sensitivity: Under normal conditions of temperature and humidity, the physical integrity of several oral jelly dosage forms cannot be maintained due to their hygroscopic nature. Hence, they need protection from humidity and it requires specialized product packaging.

5) Palatability: Masking the taste of a bitter drug for oral medicated jelly is an arduous task for formulation scientists. Oral disintegrating drug delivery systems are commonly used as most drugs have an unpleasant taste. Therefore, it is essential to mask the taste of the medication to ensure patient compliance.

6) Aqueous solubility: Water-soluble drugs present several formulation challenges due to the formation of eutectic mixtures. This can lead to freezing point depression and the creation of a glassy solid that may collapse during drying because of the loss of supporting structure during the sublimation process. To prevent such a collapsible structure, jelly-forming excipients like almond gum can be used. These excipients induce crystallinity and provide rigidity to the formulation..

7) Mouth feel: To ensure optimal oral administration, the Medicated Jellies must not break down into bigger particles and instead, should produce the smallest particles possible while leaving little residue in the mouth. Mouth feel can be enhanced by adding flavors and cooling agents, such as menthol.

8) Sensitivity to environmental conditions: Most of the materials utilized in oral medicated jellies are designed to dissolve with minimal water content; thus, these jellies should typically show minimal sensitivity to environmental factors such as humidity and temperature.

Latest research done on OMJ

No	Title	Author	Journal Name
1)	Modern pediatric formulations of the soft candies in the form of a jelly: determination of metoclopramide content and dissolution. [4]	Sofia G Karaiskou, Maria G Kouskoura, Catherine K Markopoulou	Pharmaceutical Development and Technology
2)	Easy to swallow "Instant" jelly formulations for sustained release gliclazide delivery. [5]	Simmi Patel, Nathan Scott, Kavil Patel, Valentyn Mohlyuk, William J McAuley, Fang Liu	Journal of Pharmaceutical Sciences
3)	Fast dissolving electrospun nanofibers fabricated from jelly fig polysaccharide/pullulan for drug delivery applications. [6]	Thangavel Ponrasu, Bei-Hsin Chen, Tzung-Han Chou, Jia-Jiuan Wu, Yu-Shen Cheng	Polymers

4)	Incorporating Cu-based metal-organic framework/drug nanohybrids into gelatin microsphere for ibuprofen oral delivery. [7]	Siamak Javanbakht, Parinaz Nezhad-Mokhtari, Ahmad Shaabani, Nasser Arsalani, Marjan Ghorbani	Materials Science and Engineering
5)	Different types of gel carriers as metronidazole delivery systems to the oral mucosa. [8]	Magdalena Wróblewska, Emilia Szymańska, Marta Szekalska, Katarzyna Winnicka	Polymers
6)	Enteric-coated gelatin nanoparticles mediated oral delivery of 5-aminosalicylic acid alleviates severity of DSS-induced ulcerative colitis. [9]	Anas Ahmad, Md Meraj Ansari, Rakesh Kumar Mishra, Ajay Kumar, Akshay Vyawahare, Rahul Kumar Verma, Syed Shadab Raza, Rehan Khan	Materials Science and Engineering
7)	Formulation development of paracetamol instant jelly for pediatric use. [10]	Samah Hamed Almurisi, Abd Almonem Doolaanea, Muhammad Eid Akkawi, Bappaditya Chatterjee, Khater Ahmed Saeed Aljapairai, Md Zaidul Islam Sarker	Drug development and industrial pharmacy
8)	Design and preparation of oral jelly candies of acetaminophen and its nanoparticles. [11]	Amin Hosseini, Fereshteh Bagheri, Ghobad Mohammadi, Mahsa Azami, Reza Tahvilian	Applied Nanoscience
9)	Antiseptic povidone-iodine encapsulating edible phospholipid gels. [12]	Gözde Bayer, Silvia Grasselli, Annalisa Malchiodi, Ilker S Bayer	Colloids and Surfaces A: Physicochemical and Engineering Aspects.
10)	Comparative study of the micro-rheological properties and microstructure of edible oil gels prepared by amino acid gelator. [13]	Fan Zhang, Qun Zhang, Yawen Zhou, Zhaohui Zhou, Cong Luo, Yan Wang, Baochun Yao, Xuelei Ji	Colloids and Surfaces A: Physicochemical and Engineering Aspects.

Marketed Products

No	Brand Name	API	Application
1)	Kamagra 100 mg, Vigore Jelly Funtime oral Jelly etc.	Sildenafil	Erectile dysfunction
2)	Newbona Jelly	Alendronic Acid	Erectile dysfunction
3)	Tadarise-20 mg, Apcalis-SX 20 mg.	Tadalafil	Erectile dysfunction
4)	Carokid , Vittles Jelly	DHA + Lutein + Zeaxanthin + Vit A (Retinol Palmitate)	Maintain Health of eyes for vision.
5)	Zingavita Mighty Vitamins	Vit A, C, D, E, Zinc &	Multi-Vitamin

		Iodine.	
6)	Biotin Hair Gummies (Lakshmi Krishna)	Biotin, Zinc, Vit A, C & E.	Improve strength and texture of Hair, Nails etc.
7)	Zandu ImmU Soft chews (Jellies)	Amla, Tulsi, Honey and Apple.	Immunity Booster.



Marketed oral medicated Jelly and Nutraceuticals Jelly



Marketed oral medicated Jelly and Nutraceuticals Jelly

Drugs Suitable for Jelly

1. **Analgesics & Anti-inflammatory Agents** = Difenflusal, Fenbufen, Fenoprofen, Ibuprofen.
2. **Anti-Arrhythmic Agents** = Amiodarone HCl, Disopyramide, Flecainide Acetate.
3. **Anti-coagulants** = Dicoumarol, Dipyridamole.
4. **Anti-fungal Agents** = Butoconazole nitrate, Clotrimazole, Econazole nitrate.
5. **Anti-bacterial Agents** = Benethamine Penicillin, Cinoxacin, Ciprofloxacin Hcl, Clarithromycin.
6. **Anti-gout Agents** = Allopurinol, Probenecid, Sulphinpyrazone.
7. **Anti-hypertensive Agents** = Amlodipine, Carvedilol, Benidipine, Darodipine, Diltiazem HCl.
8. **Anti-migraine Agents** = Dihydroergotamine Mesylate, Succinate.
9. **Anti-muscarinic Agents** = Atropine, Benzhexol HCl, Biperiden, Ethopropazine HCl.
10. **Anti-neoplastic Agents and Immunosuppressants** = Aminoglutethimide, Amsacrine Chlorambucil, Cyclosporin, Dacarbazine, Estramustine.
11. **Anti-protozoal Agents** = Metronidazole, Nimorazole, Nitrofurazone, Ornidazole, Tinidazole.
12. **Anti-thyroid Agents** = Carbimazole and Propylthiouracil.
13. **Anxiolytic, Sedatives, Hypnotics and Neuroleptics** = Alprazolam, Amylobarbitone, Barbitone
14. **Cardiac Inotropic Agents** = Amrinone, Digitoxin, Digoxin. Corticosteroids Beclomethasone, Betamethasone, Budesonide, Cortisone Acetate.
15. **Diuretics** = Acetazolamide amiloride, bendrofluazide, bumetanide, chlorothiazide, chlorthalidone.
16. **Enzymes All Enzymes.**
17. **Anti-sparkinsonianAgents** = Bromocriptine mesylate, Lysuride maleate.
18. **Gastro-intestinal Agents** = Bisacodyl, cimetidine, Cisapride, diphenoxylate HCl, famotidine.
19. **Histamine Receptor Antagonist** = Acrivastine, Astemizole, cinnarizine, cyclizine.
20. **Lipid Regulating Agents** = Bezafibrate, Clofibrate, Fenofibrate, Gemfibrozil, Probuocol.
21. **Local Anaesthetics** = Lidocaine.
22. **Neuro-muscular Agents** = Pyridostigmine.
23. **Nitrates and other Anti-anginal Agents** = Amyl Nitrate, Glyceryl trinitrate, Isosorbide Dinitrate.

24. Vitamins = Vitamins A, C, D, E.

25. Nutraceuticals = Multivitamins, Minerals, Iron, Zinc, Iodine etc.

Ingredients in Oral Medicated Jellies (OMJs) [3] [1]: -

1) Drugs = The API drug which shows pharmacological action when come in contact with body. e.g., Paracetamol, Ondansetron etc.

2) Gelling Agents = These are usually hydrocolloids, which have been found appropriate for the formulation of gel like matrix. Some examples of them are as follows:

1. Gelatin: Gelatin is widely used in a variety of pharmaceutical formulations, including its use as a biodegradable matrix material in an implantable delivery system. Food products and photographic emulsions are also extensively utilizing gelatin.

2. Pectin: It is a heteropolysaccharide obtained from cell walls of terrestrial plants. It is used against constipation & diarrhoea, where it increases viscosity & volume of stool. Due to its lesser cost, it is used in various delivery methods like controlled release, mucoadhesive, gastroretentive, colon-specific drug delivery systems. Also used as stabilizer in cosmetics. Pectin is a very good gelling agent and is used in the preparation of many types of jellies including edible jellies. Experimental use of pectin includes its incorporation into gel formulations for oral sustained drug delivery as well as its utilization as an adsorbent and bulk-forming agent.

3. Tragacanth: Tragacanth gum is used is used as an emulsifying and suspending agent in a variety of pharmaceutical formulations. It is used in creams, gels, and emulsion formulations. The amount of gum required for a preparation varies with its use:

a. For lubricating jelly 2 to 3%.

b. For dermatological vehicles about 5 %.

4. Sodium Alginate: Alginate is obtained from the cell wall of brown algae. Alginates bind with water and forms thick gum. It is used in a variety of oral and topical pharmaceutical formulations. In topical formulation, it is widely used as thickening agent and suspending agent in a variety of pastes, creams and gels, also used in cosmetics and food products.

Advantage: Sodium alginate is advantageous over tragacanth as it is available in various grades with standardized viscosity.

5. Xanthan Gum: It is widely used in oral and topical pharmaceutical formulations, cosmetics and food as suspending agent and stabilizing agent. It is also used as a thickening and emulsifying agent. It is also used as a hydrocolloid in the food in industry, and in cosmetics it has been used as thickening agent in shampoo.

6. Cellulose Derivatives: E.g., Methyl cellulose sodium carboxy methyl cellulose.

7. Agar Agar-agar is vegetarian product & substitute to gelatin. It is obtained from algae & is White and semi-translucent. It has various applications such as thickener, gelling agent, texturizer, moisturizer, emulsifier, flavor enhancer, absorbent in pharmaceuticals & food products.

3) Stabilizers = There are some additives that are added as stabilizers in the formulations to prevent the drying of jellies. Some examples of them are as follows:

1. Propylene glycol

2. Sorbitol

3. Chelating agent e.g., EDTA is added to prevent the sensitivity of bases and the medicaments towards heavy metals

4) Sweeteners = These are the agents which use to overcome the bad taste of drugs and other excipients and gives a sweet taste to the jelly. These are few examples,

1. Sucrose = Sucrose was most preferred sweetening agent because it is soluble in water, it is economical i.e., its highest purified form can be obtained at reasonable price, physically and chemically stable in different pH.

2. Saccharin = It is an artificial sweetening agent. It is about 250-500 times sweet as sucrose. Particularly at higher concentrations it gives bitter or metallic aftertaste. It has excellent stability and water solubility.

3. Dextrose = They are anhydrous & monohydrate form of dextrose; among them anhydrous form is hygroscopic in nature. It is roughly used as 70 % sucrose.

4. Sucralose = It is an artificial sweetener. Sucralose is obtained by replacing 3 hydroxyl groups with chlorine atoms in sucrose molecule. It is about 320 to 1,000 times as sweet as sucrose, twice as sweet as saccharin, and thrice as sweet as aspartame. Compared to sucrose onset of sweetness occurs slowly but sweetness remains for longer duration of time.

5) Preservatives = Since jellies are aqueous preparations which may allow the microbes to grow. Preservation must be selected to avoid any incompatibilities with the gelling agents, which may retard the shelf life of the product. Cellulose derivatives and clay resist the microbial attack. Some examples of them are as follows:

- Methyl paraben
- Propyl paraben
- Benzoic acid
- Benzalkonium chloride

6) Flavouring & Colouring agents = Flavouring agents are use to overcome Bitter taste of drugs. Flavouring agents also enhances patient's compliance. While colouring agents are use give a good appearances to the jelly for patient's compliance.

Preparation Method of Jelly [3]

- Jellies were prepared by heating and congealing method.
- Prepared using freshly boiled and cooled distilled water as per composition listed.
- Sucrose syrup prepared in water on heating and stirring at 800 c for about 90 minutes.
- Weighed polymer powder was dispersed in 10 ml of water maintained at 900 c throughout the preparation.
- The dispersion was stirred using a magnetic stirrer for 20 mins to facilitate hydration of gelling agent.
- Drug taken in to another beaker and solubilized using alcohol.
- Simple syrup was added to it under continuous stirring.
- The citric acid and preservatives were added under continuous at 600.
- The final weight was adjusted with purified water, mixed, transfer to suitable moulds, sealed and allow to cool that room temperature (250 ±50 c) to form a jelly like texture.
- Finally, when jelly set it is wrapped in gelatine paper and stored in dry place.

Evaluation Parameters [1]

1. Physical examination = The medicated jelly will be examined physically for appearance like texture, transparency and consistency, gumminess and grittiness. Grittiness is determined by rubbing the jelly between fingers. The oral jelly was also subjected for clarity, colour, odour etc.

2. Viscosity = Viscosity had been measured using Brookfield Viscometer. As the system is non-Newtonian spindle no. 4 was used.

Formula for viscosity is given as:

Viscosity in centipoise = Dial Reading x Factor.

3. pH determination = The pH of all the jelly was determined using digital pH meter. 0.5 gm of the weighed formulation was dispersed in 50 ml of distilled water (50%) and the pH was noted.

4. Spreadability = For the determination of spreadability sample of jelly was applied between two glass slides and compressed to uniform thickness by placing 1000gm weight. The time required to separate the two slide moves over the lower slide was taken measure of spreadability.

$$S = m * L/T.$$

Where, m = weight tide to upper slide,

L = length moved on glass slide,

T = time taken.

5. Drug content = This evaluation is performed for every dosage form to assure the equality of content in drug substance. To analyze the drug content, ten jellies are first chosen and crushed using a mortar. Next, an amount of the crushed mixture equivalent to that of the drug is taken and dissolved in a 100 ml volumetric flask

containing a buffer with a pH of 6.8. Finally, the volume is adjusted to the mark. Then the solution was filtered & diluted appropriately, and analysed spectrophotometrically using UV-visible double-beam spectrophotometer.

6. Stickiness and Grittiness = It is determined by rubbing the jelly between two fingers and then stickiness and grittiness is checked visually.

7. Weight variation = It is determined by the average weight of ten jellies as they are taken out of moulds in a beaker and individually weighed and mixed.

8. Syneresis = Syneresis is defined as contraction & separation of water from the gel upon storage and the jelly preparation was evaluated after 24 hours at room temperature. One of the major causes for syneresis is using lesser concentration of gelling agent. Low acylated guar gum gels are mostly prone to syneresis.

9. Microbial studies = 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. The jellies were tested for culturing pathogens on specific medium for E. coli, S. Aureus and P. Aeruginosa.

10. In-vitro taste analysis = 5 ml simulated salivary pH was used to analyse the taste competency of prepared jelly. One jelly from each batch placed in 5 ml solution in a 50 ml beaker for 60 sec. to 120 sec, solution is the filtered respectively. By using UV, filtrates were examined for drug content.

11. In-vitro dissolution study = An in-vitro dissolution study will perform with USP basket apparatus using suitable dissolution medium. Dissolution medium was kept at $37^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ and 50 rpm. The sample are withdrawn after 10, 20, 30, 40, 50, 60 minute and replaced with fresh media. The Sample ware determined for drug release using suitable analytical method.

12. Stability studies = Stability studies are determined according to ICH guidelines and can be evaluated by carrying out the prepared jelly. The jelly formulas are placed into aluminum foils and kept in polyethylene containers at 0°C , 25°C , and 60% RH for a period of 90 days.

IV. LIMITATIONS OF OMJS

1. Cost-intensive production process.
2. Standard blister packs have a deficiency in physical resistance.
3. Special packaging is required by OMJ to ensure proper stabilization and safety of their stable product.
4. It also demonstrates the delicate and fizzy nature of the granules.
5. Limited ability to incorporate higher concentrations of active drug.
6. ODT, being hygroscopic in nature, must be stored in a dry place.

V. CONCLUSION

From the review study on Oral Medicated Jelly, I have concluded that OMJ are easily accepted by patients with dysphagia, paediatric and geriatric patients. There is various research have done for formulating OMJ and still the work is going on but when we compare the research vs its market availability, then there are no such products which effectively contributing to delivering the drugs for treatment purposes except few. Hence, patient compliant dosage form proves beneficial over conventional ones. It introduces the drug in a readily soluble form which might enhances the bioavailability of many poorly soluble drugs. The present study suggests that oral medicated jellies have great potential as a drug delivery method for achieving effective doses in the systemic circulation. It is the novel approach which aims to improve safety and efficacy and also enhance patient compliance. Oral jellies are alternative to solid dosage form as they possess both solid and liquid properties and having easy administration without ingestion of water.

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