International Journal of Advanced Research in Science, Communication and Technology



International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 5, Issue 3, June 2025



# Formulation and Evaluation of Polyherbal Pedriatic Edible Jelly for Cough

Komal Halwar and Prof. Manisha Virkar

Gajanan Maharaj College of Pharmacy, Chh. Sambhajingar

Abstract: Oral route is the convenient and acceptable route for better patient compliance and easy administration. Oral medicated jellies remain popular among the consumer and children and hence it has continued commercial production. It is an attractive and palatable dosage forms for pediatrics and can be administered without water in the oral cavity meant to be dissolved in mouth or pharynx for its local or systemic effects. These dosage form can be adopted for delivery of drug across buccal route, gingival route, labile route and sublingual route. It has estimated that about 50% of population has problem of swallowing tablets especially pediatrics and geriatrics. Jellies are the most preferred dosage form for even dysphagia patients. Jellies are formulated by Heating and congealing technique. Jellies are semisolid dosage form as they are transparent, non-greasy and can be used internally as well as externally. For any pediatric formulation color, taste, flavor, texture and its acceptance is very important. It serves as a novel dosage form with wide application in pharmaceuticals, nutraceuticals and over the counter medicines. Jellies are evaluated for further evaluations such as weight variation, spreadability, content uniformity, syneresis, palatability, dissolution etc.

Keywords: Soft chew, oral medicated jelly, taste masking, gelling agent, dysphagia, pediatric formulation

OBJECTIVE:

• To Cough Relief Alleviate dry or productive cough by soothing the throat and reducing irritation. Help in expelling mucus in cases of wet cough (expectorant effect).

• To Multi-Herb Synergy Combine several medicinal herbs (e.g., Tulsi, Licorice, Vasaka, Ginger) known for their antitussive, anti-inflammatory, antimicrobial, and mucolytic properties. Utilize synergistic effects for enhanced efficacy over single-herb formulations.

• To Child-Friendly Dosage Form Present the formulation in jelly form, which is: Easier to administer than syrups or tablets.More palatable for children due to sweet taste and smooth texture. Dosing-friendly, minimizing chances of spillage or incorrect measurement.

• To Natural and Safe Provide a natural alternative to synthetic cough syrups that may have side effects. Ensure minimal adverse effects, making it safe for repeated use in pediatric populations.

### I. INTRODUCTION

When it occurs suddenly and frequently, a cough aids in clearing the big breathing passages of fluids, irritants, foreign objects, and bacteria. Coughing is typically completely natural. Coughing may aid in the removal of mucus and other irritants from the throat. However, persistent coughing can also be a sign of a variety of diseases. The cough reflex typically involves three phases: an inhale, a forced exhalation against a closed glottis, and a sudden expulsion of air from the lungs once the glottis opens up. There are two types of coughing: forced and unforced. Coughing is one of the most common health issues. Additionally, respiratory tract infections like the common cold, acute bronchitis, pneumonia, flu, and smoking, as well as medical conditions like asthma, TB, and lung cancer, can cause coughing. Chest pain, congestion, and an itchy throat are a few signs of a cough. Repeated coughing causes irritation and discomfort, both of which lead to additional coughing. In addition to suppressing the cough, cough suppressants also help to ease the discomfort brought on by frequent coughing. Back discomfort, headaches, fever, and malaise are

Copyright to IJARSCT www.ijarsct.co.in



DOI: 10.48175/568



69



International Journal of Advanced Research in Science, Communication and Technology

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

#### Volume 5, Issue 3, June 2025



examples of extra thoracic symptoms that may need symptomatic therapy. Expectorants and antitussive medicines are the mainstays of cough treatment . Jellies are semi- solid preparations that are clear or translucent, non-greasy, and intended for both internal and external use. With or without water, you can chew or swallow them . Now a days, jelly candies are particularly popular among kids because they like to chew them and because they offer an option to solid and liquid dose forms for delivering medications . Medicated jelly can treat both systemic and local conditions, including those affecting the oral cavity. Medicated jellies can absorb medication into the pre-gastric, gastric, and post-gastric parts of the gastrointestinal tract, as well as local Oro mucosal tissues . Today, people frequently use herbal therapies to treat coughs. Additionally, herbal medications and herbal preparations are crucial in treating a variety of coughs.

Today, we employ medications like cough suppressants as therapy. The antitussive medication only alleviates symptoms. Herbal jelly, a product of concentrated extracts of medicinal plants, uses agar, pectin, or gelatin as its substrate. Honey is added to the base of jelly before adding the extracts of various herbs, including Ocimum sanctum (Tulsi), Adhatoda vasika (Adulsa), Elettaria cardamom (Cardamom), Zingiber officinale (Ginger), Mentha piperita (Peppermint), Glycyrrhiza glabra (Liquorice), Eugenia caryophyllus (Clove), and Cinnamonum zeylanicum (Cinnamon) to the base of jelly with the addition of honey.

### MATERIAL AND METHOD:

		6	1 5 1 5 5		
Sr.no	Ingredients	Botanical Name	Active Constituent		
1	Tulsi	Ocimum sanctum	Eugenol, Carvacrol		
2	Liquorice	Glycyrrhiza glabra	Glycyrrhizin, Glycerrhe tinicacid, Glycyrrhizic acid. Adhatod		
			vasika Vasicine, Vasicinone		
3	Adulsa	Adhatoda vasika	Vasicine, Vasicinone		
4	Ginger	Zingiber officinale	Zingiberin, gingerols, Cineole, sesquiterpene		
5	Cardamom	Elettaria Cardamomum	Cineole, Eugenol, Limo nene, Borneol		
6	Guduchi	Tinospora cordifolia	Alkaloids, Terpenoids		
7	Clove	Eugenia caryophyllus	Eugenol, Acetyl eugenol		
8	Cinnamon	Cinnamomum zey	Cinnamaldehyde, Eugenol		
		lanicum			
9	Honey	Apis mellifera	Eugenol		
10	Sucrose	-	-		
11	Agar	-	-		
12	Gelatin	-	-		
13	Water	-	-		

Tabel 1 – List of ingredients used in formulation of polyherbal pedriatic jelly

Table 2 : Formula for Preparation of Polyherbal Jellies.

Sr.No	Ingredients	F1	F2	F3
1	Tulsi	2g	2g	2g
2	Liquorice	2g	2g	2g
3	Adulsa	2g	2g	2g
4	Ginger	0.5g	0.5g	0.5g
5	Cardamom	0.5g	0.5g	0.5g
6	Guduchi	0.5g	0.5g	0.5g
7	Clove	0.2g	0.2g	0.2g
8	Cinnamon	0.2g	0.2g	0.2g
9	Honey	5ml	5ml	5ml

Copyright to IJARSCT www.ijarsct.co.in



DOI: 10.48175/568





International Journal of Advanced Research in Science, Communication and Technology

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal



Volume 5, Issue 3, June 2025

10	Agar	2g	1.7g	2g
11	Gelatin	lg	0.8g	0.5g
12	Sucrose	33.35g	33.35g	33.35g
13	Colour	q.s	q.s	q.s
14	Flavour	1ml	1ml	1ml
15	Water	200ml	200ml	200ml

Decoction of herbal ingredients:

All herbal ingredients (Ocimum sanctum, Glycyrrhiza glabra, Adhatoda vasika, Zingiber officinale, Mentha piperita, Elettaria cardamomum, Eugenia caryophyllus, and Cinnamomum zeylanicum) were weighed accurately. Figure 1 shows Herbal ingredients used for the formulation of jellies. All herbs were transferred into 250 ml of RBF, and 200 ml of water was added to it. The mixture was refluxed at 60°C for 1 hour by using a heating mantle. The above mixture was filtered. The filtrate was boiled until the total volume became one fourth of the previous. Figure 2 shows the pictorial representation of preparation of decoction.



Fig : Preparation of Decoction

Copyright to IJARSCT www.ijarsct.co.in



DOI: 10.48175/568





International Journal of Advanced Research in Science, Communication and Technology

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 5, Issue 3, June 2025



EVALUATION OF FORMULATION:

Characterization of polyherbal jellies includes the following parameters:

• Physical appearance:

Physical appearance of the herbal jellies' appearance, including colour, clarity, texture, transparency, consistency, and scent, is possible.

• Determination of pH:

A digital pH meter can be used to determine the jelly's pH. The pH was measured after

0.5 g of the weighted formulation was dissolved in 50 ml of water.

• Viscosity:

A Brookefield viscometer can be used to measure viscosity. Spindle number 4 can be used because the system is not Newtonian.

• Content uniformity:

The jellies can be chosen and crushed in a mortar, and the final volume can be adjusted to the required amount by dissolving a mixture equal to that of the drug in 100 ml of volumetric flask containing 6.8 PH buffer. The solution can then be properly filtered, diluted, and subjected to spectrophotometric analysis using a UV spectrophotometer. It becomes challenging to maintain polyherbal jellies' consistent content. A combination of various herbal elements is frequently included in the ingredients of polyherbal medical medicines.

• Disintegration test:

Disintegration tests can be utilised as an alternative to in vitro dissolving studies for polyherbal jellies. Six polyherbal jellies were chosen at random from various recipes to determine the disintegration time. The disintegration medium was 0.1N HCl, and the temperature was held constant at 37 0.5 °C. The duration of jellies' disintegration was recorded.

### **RESULT:**

The jellies were prepared by using herbal decoction with gelatin and agar as gelling agent. The pre pared jellies were inspected visually and the results are shown in Table 3.

Sr.No	Formulation	Colour	Odour	Texture	Taste	Clarity	PH
1	F1	Brown	Pleasant	Smooth	Sweet	Transparent	5.31
2	F2	Red	Pleasant	Smooth	Sweet	Transparent	5.24
3	F3	Red	Pleasant	Smooth	Sweet	Transparent	5.26

Formulated polyherbal jellies:



Copyright to IJARSCT www.ijarsct.co.in



DOI: 10.48175/568





International Journal of Advanced Research in Science, Communication and Technology

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 5, Issue 3, June 2025



#### **DISCUSSION:**

The jellies were prepared by using herbal decoction with gelatin and agar as gelling agent. The prepared jellies were inspected visually and the results are shown in Table 3. The gelling agent jellies formulated with agar are non-sticky and gritty (F2). The jellies formulated using gelatin as a gelling agent is very smooth and sticky (F1). Combining agar and gelatin resulted in jellies that were nonsticky, non-gritty, transparent, and exhibited a good appearance (F1, F2, and F3). We measured the pH of all formulations using a digital pH meter, and found that all formulations fell within the pH 5–6 range.

### **CONCLUSION :**

The present study successfully formulated edible jelly loaded with extracts from various herbs. Agar and gelatin were used as jelling agents. The optimized formulations F1 and F2 showed excellent appearance, texture, and no grittiness. The pH of the optimized formulations was between 5 and 6. Which is suitable to administer to children as an alternative oral solid dosage form.

### REFERENCE

1. .Khemchand R. Surana ,Vaishali N. Sonawane,Chaitali A. Yeola , Jayesh V. Musale , Sunil K. Mahajan ,Deepak D. Sonawane , Vijayraj N. Sonawane,Raj K. Keservani( 2024) Formulation, Development and Evaluation of Herbal Pediatric Edible Jelly for Cough.Pg .no 89-97

2. Ashwini D. Darade and Atish S. Mundada(2021) Oral medicated jellies as A empering platform for oral drug delivery in pedriatics.Vol .no 10 .Pg no 1628-1629

3. Mayur M More, Rohit S Jaiswal, Dnyanewshwar S Gawale, Sagar A Chaudhari, Rituraj P Chavhan and Vaishali T Khairnar (2023) A review on formulation and evaluation herbal oral medicated jellies of Glycyrrhiza and Ajwain .Pg no 3-4

4. Mr.Prasad Kailas Gaikwad, Mr.Pratik B. Bhange, Dr. Megha T Salve (2024) A Review On Formulation And Evaluation Of Pediatric Herbal Chocolate Vol 12 .Pg no.24

5. Pranjali Indian, Anjali Indian, Aafreen (2023) Formulation and Evaluation of Polyherbal Medicated Jelly .Vol(10) Pg .no 1525-1527

6. Kumar M, Parihar S (2022) A literature review on herbs used in cough medication. . doi:10.36347/sajp.2022.v11i09.001

7. Sharma V, Chopra H.(2010) "Role of taste and taste masking of bitter drugs in pharmaceutical industries an overview". Pg.no- 1235

8. Rowe Raymond C, Sheskey Paul J, Sian C. Owen(2000) "Handbook of Pharmaceutical Excipients". Pg.no 507-508

9. Raja Manali M, Dhiren P (2016) "Oral medicated jelly: a recent advancement in formulation". An international journal of pharmaceutical sciences, Pg.no 13-20.

10. . Satya Narayana D.A, Kulkarni P.K, Shivakumar G.H (2011) "Gels and jellies as a dosage form for dysphagia patients: A review". Vol no 6 . Pg.no 79-86.

11. Sharma, M., & Jain, D. K. (2012). Chocolate formulation as drug delivery system for Pediatrics. Indonesian Journal of Pharmacy, Pg.no 216-224.

12. Sharma, M., & Jain, D. K. (2012). Chocolate formulation as drug delivery system for Pediatrics. Pg.no 216-224.

13. Patil SJ, Surana KR, Mahajan SK.(2024) Quantification of active phytoconstituents in ethanolic extract of Mentha piperita by modern analytical tools. Res J Agril Sci. Pg.no 615-621.

14. Patil SJ, Surana KR, Mahajan SK.(2023) In vitro antimicrobial and antifungal activity of Mentha piperita active phytoconstituents. Res J Agril Sci. Pg.no 1875-7.

15. Abidi S, Imam S, Tasleem F, ZehraRizvi SR, Salman S, Gilani U, Mahmood ZA.(2021) Formulation and evaluation of natural antitussive cough syrups. Pak J Pharm Sci. Pg.no 1707- 1713.

16. Panda P, Sahu A. (2023) Formulation and evaluation of herbal cough syrup. Asian J Pharm Res Dev.Pg.no 28-33.

17. Almurisi SH, Doolaanea AA, Akkawi ME, Chatterjee B, Ahmed Saeed Aljapairai K, Islam Sarker MZ.(2020) Formulation development of paracetamol instant jelly for pediatric use. Drug Dev Ind Pharm. Pg.no 1373-83.

Copyright to IJARSCT www.ijarsct.co.in



DOI: 10.48175/568



73



International Journal of Advanced Research in Science, Communication and Technology

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

#### Volume 5, Issue 3, June 2025



18. Sonawane VN, Suryawanshi KG, Wagh KH, Sonawane SL, Sonar AD, Sakle SJ, Sonawane DD.(2023) A comparative study of dissolution profiles on various brands of diclofenac sodium prolonged release tablet formulation. Prog Chem Biochem Res. Pg.no 1271

19. Fenwick GR, Lutomski J, Nieman C.(1990) Liquorice, Glycyrrhiza glabra L.composition, uses and analysis. Food Chem. Pg.no 119- 1143.

20. Błaszczyk N, Rosiak A, Kałużna-Czaplińska J.(2021) The potential role of cinnamon in human health. Forests. Pg.no 648.

21. Nayak P, Kumar T, Gupta AK, Joshi NU.(2-020) Peppermint a medicinal herb and treasure of health: a review. J Pharmacogn Phytochem.Pg.no-1519-1528.





