Formulation And Characterization of Cyproheptadine Hydrochloride Syrup For Teenagers Use

Shaikh Ayesha Akil[1], Prof.khade Poonam P[2], Dr.Megha T.Salve[3]
Shivajirao Pawar College Of Pharmacy Pachegaon Tal Newasa Dist Ahilyanagar

Abstract- *In order to manage malnutrition, weight loss, and associated health conditions, appetite stimulants are essential. This study examines a range of hunger stimulants, such as natural substances, dietary supplements, and medications. We go over their effectiveness, modes of action, and possible uses in medical situations. We also look at the advantages and disadvantages of various stimulants, emphasizing how they may enhance patient outcomes and quality of life. Healthcare providers can create focused therapies to help people with impaired nutritional status by comprehending the function of appetite stimulants.*

Types of Appetite Stimulants:

1. *Pharmaceuticals: Megestrol acetate, dronabinol, and mirtazapine are among the medications used to increase appetite in individuals suffering from depression, cancer, and HIV/AIDS.*
2. *Nutritional Supplements: Supplements that include vitamins, minerals, and protein can help promote nutrition and hunger.*
3. *Natural chemicals: Studies have demonstrated that some herbs and chemicals, such as cannabis, ginger, and turmeric, increase hunger.*

Keywords- Appetite, Stimulants, Nutrition, Malnutrition, Weight gain, Supplements, Natural compounds.

I. INTRODUCTION

Hunger is a physiological reaction to insufficient food, driven by biological processes such as decreased blood glucose levels, hormonal fluctuations, and signals from the hypothalamus. It signifies the body's real need for nutrition to sustain energy equilibrium. On the other hand, appetite refers to the psychological wish to eat, shaped by external influences like sensory stimuli (the sight, aroma, and flavor of food), emotional conditions, and societal or cultural circumstances. Appetite can arise even when hunger is absent, as seen when one desires dessert after having eaten a full meal, or hunger may be present without any appetite. Recognizing these differences is crucial for analyzing eating behaviors and their repercussions for health.

Loss of appetite can significantly impact health, leading to malnutrition and related issues. Various factors contribute to this condition, including medical conditions, medications, mental health concerns, and age-related changes. Addressing the underlying causes and providing nutritional support can help manage loss of appetite and improve overall well-being.[1]

Advantages:[2]

1. Weight gain: People with diseases like cancer, HIV/AIDS, or eating disorders might gain weight in a healthy way by using appetite stimulants.
2. Better nutrition: A greater hunger guarantees a sufficient intake of nutrients, promoting general health and wellbeing.
3. Improved quality of life: For people with chronic conditions, appetite stimulants can increase strength, vitality, and general quality of life.
4. Malnutrition management: In patients with neurological diseases, cystic fibrosis, or COPD, appetite stimulants can help control malnutrition.
5. Assistance during medical treatment: Patients receiving radiation, chemotherapy, or surgery can benefit from appetite stimulants by maintaining a healthy diet.

Disadvantages:[2]

1. Addiction and dependency: Certain hunger stimulants, particularly those with psychoactive qualities, have the potential to cause addiction or dependence.
2. Adverse effects: Nausea, vomiting, diarrhoea, and elevated heart rate are some of the adverse effects that appetite stimulants may produce.
3. Weight increase issues: If weight gain is not well regulated, it may result in unhealthy weight gain.
4. Medication interactions: Appetite stimulants may change the way other drugs work or raise the risk of adverse effects.
5. Disguising of underlying illnesses: By disguising underlying problems that cause appetite loss, appetite stimulants may postpone diagnosis.

Characteristics:[2]

1. Pharmacological characteristics: - Regulates appetite by acting on neurotransmitters (e.g., dopamine, serotonin).
-Affecting hormones that regulate hunger, such as leptin and ghrelin.
2. Increasing food intake and appetite are examples of therapeutic characteristics.
-Improving the state of nutrition.
-In favour of gaining weight.
3. Chemical characteristics: - Diverse modes of action (e.g., steroids, cannabinoids).
-Various formulations (e.g., vitamins, oral treatments).
4. Clinical characteristics: - Used to treat diseases such as malnutrition, anorexia, or cachexia.
-Patients with HIV/AIDS, cancer, and other chronic conditions are frequently administered this medication.

II. MATERIAL AND METHOD

Table 1: Composition

Sr .No	Materials	Quantity
1.	**Cyproheptadine hydrochloride**	**80mg/200ml**
2.	**Sucrose**	**60g/200ml**
3.	**Orange flavour**	**4g/200ml**
4.	**Methylparaben**	**4g/200ml**
5.	**Propylparaben**	**0.8g/200ml**
6.	**Carboxymethylcellulose sodium**	**8g/200ml**
7.	**Purified water**	**QS**

III. PRE-FORMULATION TEST

- FTIR Analysis
- Angle of repose
- Bulk density
- Tapped density
- Hausners ratio
- Compressibility

I. Fourier transform infrared (FTIR) spectrum analysis using furosemide An FTIR instrument (FTIR-Perkin Elmer-Spectrum Version 10.03.06), which is accessible at a state-of-the-art analytical instrument facility, was used to record these constituents utilising the KBr mixing procedure.[3]
II. Angle of Repose: The maximum angle that may be formed between the surface of the powder pile and a horizontal surface is known as the angle of repose. Most medicinal powders have angle-of-repose values between 25 and 45°; lower values indicate better flow characteristics. Tan θ = h / r, where h is the pile's height and r is the base's radius.[4]
III. The amount of powder with a known mass that passed through the screen is used to compute bulk density.
IV. Tapped density: This value is obtained by mechanically tapping the measuring cylinder containing the powder.[5]
V. Compressibility index: The ability of a powder to compress into a tablet with a specific tensile strength is known as "compactability," while the ability to reduce volume when compressed is known as "compressibility." It may be used to predict the flow characteristics based on density measurements.[6]

IV. METHOD OF PREPARTION

Table 1: Composition

Sr.No.	Materials	F1	F2	F3	Role
1.	Cyproheptadine hydrochloride	80mg	80mg	80mg	Active Ingredient
2.	Sucrose	40g	60g	80g	Sweetener
3.	Orange flavour	4g	4g	4g	Flavouring Agent
4.	Methylparaben	4g	4g	4g	Preservative
5.	Propylparaben	0.8g	0.8g	0.8g	Preservative
6.	Carboxymethylcellulose sodium	8g	8g	8g	Thickening Agent
7.	Purified water	QS	QS	QS	Vehicle

Process:

Step 1: First, weigh the ingredients.
1. Weigh the 80 mg of cyproheptadine hydrochloride.
2. Weigh the 60g of sucrose.
3. Weigh out the orange or vanilla flavour (4g).
4. Weigh the 4g of methylparaben.
5. Weigh the 0.8g of propylparaben.
6. Measure the sodium carboxymethylcellulose (8g).

Step 2: Get the ready Syrup Base
1. Put the purified water and sucrose in a mixing tank.
2. To dissolve the sucrose, heat the mixture to 50–60°C.
3. Continue stirring until the sucrose dissolves completely.

Step 3: Including the Excipients and Active Ingredient
1. To the syrup base, add the Cyproheptadine Hydrochloride and mix until completely dissolved.
2. Stir in the orange or vanilla flavour until well combined.
3. Stir in the propylparaben and methylparaben until completely dissolved.
4. Stir in the sodium carboxymethylcellulose until completely combined.

Step 4: Bottling and Filtering
1. To get rid of any contaminants, pass the syrup through a 0.2µm filter.
2. Fill sterile, clean bottles with the filtered syrup.
3. To avoid contamination, carefully cap the bottles.

Step 5: Labelling and Control of Quality
1. Write the product name, strength, and batch number on the bottles' labels.
2. To make sure the syrup satisfies the necessary requirements, do quality control tests (such as pH, viscosity, and assay).

V. EVALUATION OF SYRUP:

1.Physical-chemical properties: The syrup was evaluated for a number of physicochemical properties, such as pH and physical appearance (colour, taste, and odour).
2. A colour analysis: was conducted by placing five millilitres of the resultant syrup in watch glasses and placing them in front of a white tube light with a white backdrop. The unassisted eye picked up on its colour.
3. Odour analysis: Two millilitres of final syrup were smelt. Two minutes were kept between sniffs in order to mitigate the effect of previous sniffing.
4.Taste evaluation: A pinch was taken to assess the final syrup's flavour on the tongue's taste buds.

VI. RESULT AND DISCUSSION

Pre formulation test:

Table 2: Pre-formulation test of Cyproheptadine HCL Drug

Sr.No.	Test	Result
1.	Colour	Orange
2.	Odour	slightly sweet or medicinal smell
3.	Taste	Sweet taste
4.	Angle of Repose	26.00^{o}
5.	Bulk density	0.48gm/ml
6.	Tapped density	0.41gm/ml
7.	Carrs index	14.5%

Post Formulation Evaluation test:

Table 3:

Sr.No.	Test	F1	F2	F3
1.	Colour	Orange	Orange	Orange
2.	Odour	Sweet	Sweet	Sweet
3.	Clarity	Clear	Clear	Clear
4.	Taste	Sweet	Sweet	Sweet
5.	pH	6.9	7.3	7.9

VII. CONCLUSION

Teenagers' allergies, itching, and hunger stimulation have all been successfully treated with cyproheptadineHCl syrup. Teenagers can benefit from it as a therapy because of its effectiveness and safety record. Some benefits of this syrup 1. Symptom relief: Good for reducing itching and allergy symptoms. 2. Appetite stimulation: May assist those who are losing weight or have weak appetites.

Acknowledgments:

I would like express to thanks to our Teacher Dr. Salve maam and prof. Khade P. P. for their Guidance and support for this research article.

REFERENCES

[1] Gura K, Ciccone R. Drugs and Appetite. ICAN: Infant, Child, and Adolescent Nutrition. 2010;2(6):358-69.
[2] Tiwaskar M. Perception, Approach and Management of Loss of Appetite: A Cross-sectional, Questionnaire based Physician Survey. J Assoc Physicians India. 2020;68(2):55-60.
[3] Gupta R. and Pathak k., (2008) Drug Dev. Ind. Pharm., Vol. 1, pp.1-8.
[4] Prasanna Kumar et al, An Overview on Preformulation Studies, Indo Am.J. Pharm. Sci, 2015;2(10)
[5] Kaplan,S.A.(1972)Drug Metab.Rev,1,15 -32.
[6] Davies,S.S and Higuchi,T. (1970) j. Pharm Sci.,59-137.
[7] Ansari, A.R.M., Mulla, S.J. and Pramod, G.J., 2015. Review on artificial sweeteners used in formulation of sugar free syrups. International
[8] journal of advances in pharmaceutics, 4(2), pp.5-9.
[9] Jones, D., 2012. Dosage form and Design pharmaceutical press. London, Chicago, pp.17-18.
[10] Sapre, V., Sasana, Y., Dolse, V., Sapkal, V., Ghugarkar, P. (2023). "Formulation and Evaluation of Dry Syrup." International Research
[11] Journal of Modernization in Engineering Technology and Science, 05(06).
[12] Gupta, V., Sharma, S. P., Chaurasia, D. K., Shukla, T. P(2023)."Formulation Development of Liquid Dosage Form." International Journal
[13] for Research in Applied Science and Engineering Technology, 11(1): 2321-9653
[14] Batchelor, H.K. and Marriott, J.F., 2015. Formulations for children: problems and solutions. British journal of clinical pharmacology, 79(3),
[15] pp.405-418.
[16] Gautami, J., 2016. Liquid dosage forms. Nano Sci. Nano Technol. Indian J, 10, p.101.