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CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187
https://doi.org/10.5281/zenodo.16937339

Available online at: http://www.iajps.com Research Article

FORMULATION AND EVALUATION OF BUPRENORPHINE BUCCAL TABLETS

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Abstract:
Buccal tablet of oral formulations of these drugs have been developed to improve their acceptability to patients and thus improve compliance. The focus of present investigation was to improve solubility, bioavailability and to achieved rapid onset action. Buccal tablets of Buprenorphine were prepared by direct compression technique. Four Formulations were formulated using Ethyl cellulose and HPMC as polymers on Swelling index, Disintegration time. In addition, the prepared tablets were also evaluated for weight variation, thickness, moisture absorption, friability, content uniformity, wetting time and drug release studies. Formulation reveals fast dissolution and disintegration rate of optimized Buprenorphine buccal tablets.

Key words: *Buprenorphine, Direct compression technique, FTIR studies, Synthetic polymers polymers, Drug release studies.*

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Please cite this article in press Ravi Maloth et al., Formulation And Evaluation Of Buprenorphine Buccal Tablets., Indo Am. J. P. Sci, 2025; 12(08).

CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187
https://doi.org/10.5281/zenodo.16937353

Available online at: http://www.iajps.com Research Article

FORMULATION AND EVALUATION OF ERGOTAMINE TARTARATE BUCCAL FILM

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Abstract:
The objective of present study was to develop matrix type buccal film therapeutic systems of Ergotamine tartrate using various polymers as matrix formers. Ergotamine tartrate buccal films were developed by using solvent casting technique. Various physic mechanical parameters like weight variation, thickness, folding endurance, drug content, moisture content, moisture absorption parameters. An in vitro *drug release study was designed, and it was carried out using buccal film as a membrane. Results revealed that prepared films showed good physical characteristics, no drug-polymer interaction was observed. The in vitro release study revealed that F2 formulation showed maximum release in 8 hrs. The release of Ergotamine tartrate appears to be dependent on polymer of the matrix. Moderately synthetic polymer matrices showed best release. The predominant release mechanism of drug through the fabricated matrices was believed to be by diffusion mechanism. Based upon the in vitro diffusion data the F2 formulation was concluded as optimized formulation.*

Key words: *Buccal film, Buccal drug delivery system, Ergotamine tartrate, synthetic polymers, solvent casting technique, Diffusion mechanism.*

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Please cite this article in press G. Hemalatha et al., Formulation And Evaluation Of Ergotamine Tartarate Buccal Film., Indo Am. J. P. Sci, 2025; 12(08).

CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187
https://doi.org/10.5281/zenodo.16937373

Available online at: http://www.iajps.com Research Article

FORMULATION AND EVALUATION OF IRINOTECAN LIPOSOMAL FOR TARGETED DRUG DELIVERY

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Abstract:
In the present work an attempt is being made to provide for stable drug delivery system with or having improved therapeutic index for Irinotecan in form of lyophilized liposomes. Liposomes were prepared using the thin-film hydration method and optimized for various formulation parameters. The developed liposomal formulations were evaluated for particle size, zeta potential, drug entrapment efficiency, in vitro drug release and stability. Irinotecan containing liposomes with an encapsulation efficiency of 92.67 % were prepared, and the in vitro *release of Irinotecan from the liposomes. In conclusion, the formulation was optimized, the prepared liposomes had a high Irinotecan encapsulation rate and good reproducibility, and there* in vitro *release had a certain delayed-release effect. The optimized formulation exhibited nanoscale particle size (236 nm), high entrapment efficiency (>80%), and a sustained drug release profile over 8 hours. The liposomal encapsulation of Irinotecan showed potential for improved pharmacokinetics and site-specific targeting, thereby minimizing systemic toxicity. In conclusion, the liposomal delivery system developed in this study demonstrates a promising approach to enhance the therapeutic efficacy and safety of Irinotecan.*

Keywords: *Irinotecan, Cholesterol, phosphatidyl choline, FTIR studies, thin film hydration technique, In vitro drug release studies.*

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QR code

Please cite this article in press Alvia Anjum et al., Formulation And Evaluation Of Irinotecan Liposomal For Targeted Drug Delivery., Indo Am. J. P. Sci, 2025; 12(08).

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:08/August-2025 Impact Factor- 8.187 www.irjmets.com

NANO-EMULSION APPROACH TO ENHANCE SKIN HYDRATION: FORMULATION AND EVALUATION OF A HYALURONIC ACID MOISTURIZING CREAM

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ABSTRACT

The present study focuses on the formulation and evaluation of a nanoemulsion-based moisturizing cream containing hyaluronic acid, a naturally occurring biopolymer known for its excellent water retention and skin hydration properties. Nanoemulsion systems offer enhanced stability, improved drug penetration, and a non-greasy aesthetic compared to conventional emulsions, making them highly suitable for topical cosmetic applications. The nanoemulsion was prepared using an oil-in-water (O/W) system, employing suitable oils, surfactants (such as Tween 80), and co-surfactants to achieve droplet sizes in the nanometer range. Hyaluronic acid was incorporated as the active moisturizing agent due to its biocompatibility and hygroscopic nature. The formulation was converted into a cream base by incorporating a suitable thickener to enhance viscosity and application properties. The prepared nanoemulsion cream was evaluated for various parameters including physical appearance, pH, viscosity, spreadability, droplet size, zeta potential, drug content, and in vitro drug release. The formulation exhibited desirable pH (**5.1 to 6.7**), smooth texture, and nano-sized droplets (103–110 nm), with sustained drug release up to 8 hours. No signs of phase separation or degradation were observed under stability studies. The results indicate that the nanoemulsion-based cream is a stable, effective, and cosmetically acceptable formulation for prolonged skin hydration. It holds significant potential for commercial cosmetic and dermatological use in moisturizing and anti-aging products.

Keywords: Hyaluronic Acid, Oil, Surfactants, Co-Surfactants, Nanoemulsion, Moisturizing Cream, In Vitro Drug Release Studies.

I. INTRODUCTION

Nanoemulsions/Sub-micron emulsions (SMEs)/Mini-emulsions are thermodynamically stable transparent or translucent dispersions of oil and water stabilized by an interfacial film of surfactant and cosurfactant molecules having a globule size of less than 100 nm.[1] Recently nanoemulsions are frequently used for delivery of vaccine, DNA encoded drug, antibiotics, cosmetic and topical preparations and are administrated via various routes like oral, pulmonary, intranasal, and ocular, and transdermal etc.[2] Nanoemulsions are categorized as multiphase colloidal dispersion, and are characterized by its stability and clarity. The dispersed phase typically comprises small particles or droplets, and they have very low oil/water interfacial tension[3]. Nanoemulsions are formed spontaneously and readily and sometimes generally without high-energy input. In many cases a surfactant or solvent is used in addition to the surfactant, the oil phase and the water phase[4] .Transdermal drug delivery is an interesting area of research in drug delivery. Many pharmaceutical drugs show low skin permeation, which fallouts in poor efficacy. A solvent-free topical vehicle is more efficacious in terms of percutaneous absorption with possibly devoid of adverse effects[5]. Nanoemulsion enhances the therapeutic efficacy and also the bioavailability of the drugs due to increased permeation through the skin without any adverse effects as it is non-irritant.[6]To formulate and evaluate a stable, effective moisturizing cream containing hyaluronic acid using suitable excipients for enhanced skin hydration, absorption, and consumer acceptability.

II. MATERIALS AND METHODS

Hyaluronic acid was collected as a gift sample from Hetero labs, Hyderabad and various excipients and polymers were purchased from Synpharma Research Labs, HYD.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:08/August-2025 Impact Factor- 8.187 www.irjmets.com

DEVELOPMENT OF A MOISTURIZING SHAMPOO WITH ALOE VERA: FORMULATION AND QUALITY CONTROL

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ABSTRACT

The present study focuses on the formulation and evaluation of a moisturizing shampoo incorporating Aloe vera gel as a key natural ingredient. Aloe vera is widely recognized for its hydrating, soothing, and anti-inflammatory properties, making it an ideal component for hair care products. The shampoo was prepared using a blend of surfactants, conditioning agents, and humectants, with Aloe vera gel acting as the primary moisturizer and scalp soother. The formulation was developed using standard techniques and evaluated for various physicochemical parameters such as pH, viscosity, foamability, solid content, surface tension, and conditioning performance. The results demonstrated that the Aloe vera-based shampoo exhibits excellent cleansing ability, mildness to the scalp, and moisturizing properties, without causing dryness or irritation. Furthermore, the natural gel contributed to enhanced hair softness, shine, and manageability. This study supports the use of Aloe vera gel as a natural and effective moisturizing agent in herbal shampoos, offering a safer alternative to synthetic conditioners and potentially reducing scalp-related issues due to its bioactive components.

Keywords: Moisturizing Shampoo, Formulation, Evaluation, Aloe Vera Gel Extract, Detergents, Sodium Lauryl Sulfate.

I. INTRODUCTION

Shampoos are probably the most widely used cosmetic products for cleansing hairs and scalp in our daily life. Herbal shampoos are the cosmetic preparations that with the use of traditional ayurvedic herbs are meant for cleansing the hair and scalp just like the regular shampoo[1].They are used for removal of oils, dandruff, dirt, environmental pollutions etc. Herbal shampoo is a type of cosmetic preparation that uses herbs from plants as an alternative to the synthetic shampoo available in the market.[2] The herbal shampoo is important, as people nowadays prefer herbal products than chemical ones for they proved to enhance. [3] Shampoos are probably the most widely used cosmetic products for cleansing hairs and scalp in our daily life. A shampoo is basically a solution of a detergent containing suitable additives for other benefits such as hair conditioning enhancement, lubrication, medication etc.[4] Now-a-days many synthetic, herbal, medicated and non medicated shampoos are available in the market but popularity of herbal shampoo among consumers is on rise because of their belief that these products being of natural origin are safe and free from side effects[5]. Synthetic surfactants are added to shampoo primarily for the foaming and cleansing action but their regular use leads to dryness of hairs, hair loss, irritation to scalp and eyes.[6]

II. MATERIALS AND METHODS

Aloe vera and various excipients and polymers were purchased from Synpharma research lab, HYD

2.1 METHODOLOGY

PREPARATION OF PLANT EXTRACT[7,8]

Selection of Leaves:

Choose thick, healthy, mature Aloe vera leaves (typically from outer parts of the plant).

Wash thoroughly with distilled water to remove dirt and microbes.

CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187
https://doi.org/10.5281/zenodo.16937330

Available online at: http://www.iajps.com Research Article

DEVELOPMENT AND IN VITRO EVALUATION OF ALOEVERA MOISTURIZING CREAM

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Abstract:
The present study focuses on the formulation and evaluation of a moisturizing cream incorporating Aloe vera extract, known for its soothing, hydrating, and healing properties. The aim was to develop a safe, stable, and effective herbal cream for topical application to enhance skin hydration and maintain skin health. The cream was prepared using oil-in-water (O/W) emulsion technique with natural and synthetic ingredients such as stearic acid, cetyl alcohol, glycerin, and preservatives. Aloe vera gel was used as the primary active ingredient due to its excellent moisturizing, anti-inflammatory, and antimicrobial properties. The prepared formulation was subjected to various evaluation parameters including pH, viscosity, spreadability, homogeneity, stability, and skin irritation tests. The results indicated that the cream was smooth, non-greasy, stable over time, and had acceptable physicochemical properties. No signs of skin irritation were observed in volunteers during the study period. The moisturizing effect was also satisfactory upon application, indicating its potential use as a natural skincare product. The study concludes that Aloe vera-based moisturizing cream can be a promising herbal formulation for improving skin hydration and overall skin care due to its natural origin and minimal side effects.

Key words: *Aloe vera extract, Moisturizing cream, Glycerine, Vitamin E, Spread ability, Stability.*

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Please cite this article in press Md Saleem et al., Development And In Vitro Evaluation Of Aloevera Moisturizing Cream., Indo Am. J. P. Sci, 2025; 12(08).