



KG PHARMAZINE

Published by

KG College of Pharmacy and Research Institute,

Ashokapuri & Po, Villupuram-Dt.605203.

Approved by

The Govt.of Tamilnadu.

Recognized by Pharmacy Council of India

Affiliated to The Tamilnadu Dr. MGR Medical University-Chennai

Vision

To transform the institution into a global centre of learning through application of creativity, innovation and discipline.

Mission

To provide and continuously upgrade infrastructure, state-of-the-art technology, and training for students and faculty. To encourage high-quality research in drug discovery through collaboration with industries.



ADVISORY BOARD

Mr. G.Senthilkumar, Secretary

Mr. G.Sundar, Chairman

CHIEF EDITOR

Prof. Dr. S. Ganesan Professor Cum Principal

ASSOCIATE EDITOR

Dr. M.V.V.Prasad, Academic Quality Head

Dr. Manjulakshmi, Professor

Mr. M.Kathiravan, Associate Professor

EDITORIAL MEMBERS

Mrs. J. Aruna, Associate Professor

Mrs. D.Ezhilarasi, Associate Professor

Mrs. T.Pradeepa, Assistant Professor

Mr. Senthil Kumar, Assistant Professor

Mr. S. Vasanthapriyan, Assistant Professor

Mr. Ajith Kumar, Assistant Professor

Dr. Gokula Krishnan, Assistant Professor

Dr. Nithesh Kumar, Assistant Professor

Dr. Vasanth Albert, Assistant Professor

Mr. Gunasekaran, Assistant Professor

Mr. Ragul Gandhi, Assistant Professor

Mrs. Kalaiyarasi, Assistant Professor

Mrs. Gayathri, Assistant Professor

KGCP&RI ORGANISED “BLOOD DONATION CAMP”

ON 6th JANUARY 2026

A blood donation camp was successfully organized by KG College of Pharmacy & Research Institute on the occasion of its Founder Chairman's 4th Year death anniversary in association with Villupuram Medical College & Hospital and Villupuram Lions Club on January 6, 2026. The objective of the camp was to promote the importance of blood donation and encourage voluntary participation to help save lives. Refreshments were provided to all student donors after the donation process. Prof. Dr. S. Ganesan, Principal, issued certificates of appreciation to all volunteers and extended heartfelt thanks to all participants, volunteers, and medical staff for making this event a success.



KGCP&RI CELEBRATED “PONGAL FESTIVAL”

ON 12th JANUARY 2026

KG College of Pharmacy & Research Institute (KGCP&RI), Villupuram joyfully celebrated the **Pongal Festival** on **12th January 2026** with great enthusiasm and traditional spirit. The celebration brought together students, faculty, and staff to honor the rich cultural heritage of Tamil Nadu through traditional Pongal preparation, cultural activities, and festive gatherings. The event promoted unity, gratitude, and the values of togetherness, making the celebration a memorable occasion for the entire KGCP&RI family.



KGCP&RI CELEBRATED “76th REPUBLIC DAY”

ON 26th JANUARY 2026

KG College of Pharmacy & Research Institute (KGCP&RI), Villupuram proudly celebrated the **76th Republic Day** on **26th January 2026** with great patriotism and enthusiasm. The celebration commenced with the **hoisting of the National Flag** by **Dr. Manjulakshmi, Professor, Department of Pharmacology**, followed by the singing of the National Anthem. Students, faculty members, and staff participated with immense pride, reaffirming their commitment to the values of the Indian Constitution. The event reflected the spirit of unity, patriotism, and national integrity. As part of the celebration, the **Management** conveyed Republic Day greetings to everyone and distributed sweets to all faculty members, students, and staff, adding joy to the occasion.- The programme concluded with a renewed pledge to contribute to the nation's progress through excellence in education, healthcare and service.



KGCP&RI CELEBRATED WORLD CANCER DAY

World Cancer Day 2026 was observed at KG College of Pharmacy & Research Institute, Villupuram by the I Year Pharm.D students through student presentations on 04-02-2026, a cancer awareness poster campaign, and a public pledge. The programmed emphasized early detection, cancer prevention, and healthy lifestyles, inspiring students to promote cancer awareness in the community. "Every step toward awareness brings us closer to a cancer-free future."



OUR PHARM.D STUDENTS PARTICIPATED NATIONAL SEMINAR AT ADHIPARASAKTHI COLLEGE OF PHARMACY

Our Pharm.D students actively participated in the National Seminar titled “Pharmaceutics 4.0: Artificial Intelligence in Modern Drug Design and Delivery” held on 14.02.2026 at Adhiparasakthi College of Pharmacy, organized by the Department of Pharmaceutics. The seminar focused on the transformative role of Artificial Intelligence in modern drug discovery, molecular modeling, predictive analytics, personalized medicine, and advanced drug delivery systems. Experts highlighted the integration of AI-driven technologies in accelerating drug development, improving formulation design, enhancing therapeutic precision, and optimizing clinical outcomes. The program, accredited by Tamil Nadu Dr. M.G.R. Medical University under Category IV with 5 credit points, provided valuable academic exposure and strengthened students’ understanding of emerging innovations shaping the future of pharmaceutical sciences and clinical practice.



ONE-DAY WORKSHOP FOR PHARM.D STUDENTS ON THE TOPIC **“FROM CLASSROOM TO CLINIC”**

A one-day workshop for Pharm.D students was organized by KG College of Pharmacy & Research Institute, Villupuram, in association with the Association of Pharmaceutical Teachers of India (APTI), Pondicherry State Branch on 14-03-2026 at the Seminar Hall. The programme was presided over by our Chairman Shri. G. Sundar. Dr. S. Ganesan, Principal, delivered the welcome address, and Dr. Manjulakshmi, Professor, served as the Convenor of the programme. The session was delivered by Dr. Anitha Ganna (M.Pharm., Ph.D), Professor & Head, Department of Pharmaceutical Chemistry, Mayor Radhakrishnan College of Pharmacy, Cuddalore and Secretary, APTI Pondicherry State Branch. The workshop focused on the topic, “From Classroom to Clinic: Preparing Pharm.D Students for Clinical Practice.” The session emphasized bridging the gap between academic learning and real-time clinical practice, highlighting the vital role of Pharm.D graduates in patient care, clinical decision-making, and hospital practice. More than 30 students and over 20 faculty members actively participated in the workshop. The programme was highly informative and beneficial for Pharm.D students. The event concluded with a vote of thanks delivered by Mrs. Ezhilarasi, Associate Professor.



OUR PHARM.D STUDENTS ATTENDED ONE DAY NATIONAL SYMPOSIUM AT KAMALAKSHI PANDURANGAN COLLEGE OF PHARMACY

Our Pharm.D students attended a One Day National Symposium on “IKS as a Source of Natural Drug Discovery with AI Support” held on 18th March 2026 at Kamalakshi Pandurangan College of Pharmacy, Tiruvannamalai, where they gained valuable insights into the integration of traditional Indian knowledge systems with modern technologies like artificial intelligence in drug discovery; the sessions covered topics such as Siddha medicine in modern research, AI-based drug design, and the transition from traditional remedies to rational drug development, making it an informative and enriching academic experience for all participants.



CAMPUS DRIVE - APPOINTMENT ORDERS DISTRIBUTION FUNCTION

Our KG College of Pharmacy & Research Institute, Villupuram, organized Appointment Orders Distribution Function on 29 May 2026 for the successful candidates selected through the campus drive conducted by Kawman Pharma Pvt.Ltd., on 08 May 2026. Out of 40 final-year B.Pharm students who attended the interview, six students were selected and received their appointment orders during the function. The programme presides by the Hon'ble Chairman, Ln. Dr. Senthil kumar, who delivered a motivating special address to the students. The welcome address was delivered by Dr. S. Ganesan, Principal, and the special address was given by Dr. M.V.V. Prasad, Academic Quality Head. The programme was coordinated by Dr. Manjulakshmi and enthusiastic participation of faculty members and students. The management congratulated all the selected students and wished them success in their professional careers.



KGCP&RI STUDENT EXCELS IN GPAT 2026

KG College of Pharmacy & Research Institute, Villupuram, proudly congratulates Mr. T.S. Gudan, Final Year B.Pharm student, for qualifying GPAT 2026 and securing an All India Rank of 4134. In recognition of his outstanding achievement, the college management honoured him with a cash reward. Chairman Shri G. Sundar and Secretary Ln. Dr. Senthil Kumar appreciated his dedication and wished him continued success in his future endeavors.



12TH INTERNATIONAL YOGA DAY CELEBRATION

Our KG College of Pharmacy & Research Institute, Villupuram, successfully celebrated the 12th International Yoga Day on 21 June 2026 with the theme “Yoga for Healthy Ageing.” The programme witnessed enthusiastic participation from students and faculty members who actively performed various yoga asanas and meditation practices promoting physical fitness, mental well-being, and a healthy lifestyle. The management, Principal, and faculty members encouraged students to embrace yoga as a lifelong practice for holistic development and well-being.



INDUSTRIAL VISIT (IV) TO MADRAS PHARMA INDUSTRY

A total of 65 students and 4 faculty members from KG College of Pharmacy & Research Institute, Villupuram, successfully participated in an Industrial Visit (IV) to Madras Pharma Industry on 04-07-2027. The visit provided students with valuable practical exposure to various pharmaceutical Operations, including Production, Quality Control (QC), Quality Assurance (QA), and Research & Development (R&D). The Management of KG College of Pharmacy & Research Institute, under the visionary leadership of Hon'ble Chairman Shri G. Sundar and Secretary Ln. Dr. Senthil Kumar, along with the Principal and faculty members, continuously strives to provide such industry-oriented learning opportunities for the overall development of students. They conveyed their best wishes to the students for a bright and successful future in the professional careers.



OUR FINAL YEAR STUDENTS WENT INDUSTRIAL INTERNSHIP TRAINING

As part of the curriculum requirements for the Bachelor of Pharmacy (B.Pharm) program, final-year students of KG College of Pharmacy & RI, Villupuram, underwent a 13-day industrial internship from 06/07/2026 to 18/07/2026 at four different companies - Dr. Miltons Laboratories Pvt., Ltd., Phoenix Biologicals Pvt., Ltd., Reltsen Health Care Pvt., Ltd and Safetab Life Science located at Thirubhuvanai, Puducherry. A total of 36 students participated in the program. The internship began with an orientation session covering the company's profile, safety protocols, and code of conduct. Over the course of the program, students were rotated through key departments including Production, QA, QC, and Packaging, gaining hands-on exposure to Good Manufacturing Practices (GMP), documentation procedures, quality testing, and other core pharmaceutical operations. Industry experts also conducted interactive sessions giving students further insight into current practices in the field. The program concluded with a valedictory session on 18/07/2026, where certificates of completion were presented to all participating students. Overall, the internship proved to be a valuable learning experience, reinforcing the importance of industry-academia collaboration in preparing students for careers in the pharmaceutical sector. We thank all the companies and their management for supporting our students throughout their internship.



INDUSTRIAL VISIT (IV) TO PHOENIX BIOLOGICALS PVT. LTD.,

B.Pharm IV Semester students of Our KG College of Pharmacy & Research Institute, Villupuram successfully completed an Industrial Visit to Phoenix Biologicals Pvt. Ltd., Thirubuvanai, Puducherry, on 17th July 2026. Overall 60 students, along with faculty members, actively participated in the visit. The students gained valuable practical exposure to Pharmaceutical manufacturing processes, quality control, quality assurance, laboratory practices, and industrial safety procedures. The visit helped bridge the gap between classroom learning and real-time pharmaceutical industry practices, enhancing their technical knowledge and professional skills. The Management and Principal appreciate the efforts of the faculty coordinators and our students for their enthusiastic participation.



Original Article

Online Pharmacy Usage in India Before, During, and After the COVID-19 Pandemic: A Systematic Review

Ganesan Subramaniyan¹, Senthil Kumar M², Bhuvaneshwar T³, Haripreetha T³, Kiruthika K³, Srikanth R³, Swetha B³, Thenmozhi D³*From, ¹Principal cum professor, ²Assistant Professor, ³B. Pharm final year students. Department of Pharmaceutical Chemistry, KG College of Pharmacy and Research Institute, Ashokapur, Villupuram, Tamil Nadu, India*

ABSTRACT

Online pharmacies have emerged as an important component of healthcare delivery, offering convenient access to prescription and over-the-counter medications while transforming pharmaceutical services in India. This systematic review aimed to evaluate patterns of online pharmacy utilization in India across the pre-pandemic, pandemic, and post-pandemic periods and to identify factors influencing consumer adoption, associated benefits, challenges, and regulatory implications. A comprehensive literature search was conducted in PubMed, Scopus, Google Scholar, and ScienceDirect for studies published between January 2018 and March 2025. Following screening and application of predefined eligibility criteria, 16 studies were included for qualitative synthesis. Findings demonstrated that online pharmacy usage increased progressively over time, with the COVID-19 pandemic acting as a major catalyst for rapid adoption due to lockdown restrictions, fear of infection, and the need for uninterrupted access to medications. Convenience, home delivery, competitive pricing, and continuity of therapy emerged as the principal drivers of utilization, while integration with telemedicine services contributed to sustained post-pandemic use. Despite these advantages, concerns regarding counterfeit medicines, self-medication, inadequate pharmacist interaction, data privacy, and gaps in regulatory oversight remained significant challenges. The review indicates that the behavioral changes initiated during the pandemic have persisted beyond the public health crisis, establishing online pharmacies as an integral component of India's evolving digital healthcare ecosystem. Strengthening regulatory frameworks, improving pharmacist involvement, and promoting digital health literacy are essential to ensure the safe, effective, and sustainable growth of e-pharmacy services in the country.

Key words: Online pharmacy, COVID-19, Consumer behavior, Digital health, PRISMA, Systematic review

Online pharmacies, also referred to as internet pharmacies or e-pharmacies, have transformed pharmaceutical service delivery worldwide by enabling consumers to purchase prescription and over-the-counter (OTC) medicines through web-based platforms [1–4]. Their increasing popularity is driven by convenience, cost savings, and improved accessibility. However, concerns regarding product authenticity, regulatory oversight, counterfeit medicines, and misuse of prescription medications continue to raise important public health issues [5–10]. India, with over 800 million active internet users and one of the world's fastest-growing smartphone markets, represents a rapidly expanding environment for online pharmacy services [11–14]. The Indian online pharmacy market has experienced substantial growth, supported by increasing digital literacy,

a large generic medicines market, price-sensitive consumers, and the emergence of major platforms such as PharmEasy, NetMeds, and Tata 1mg [15–17]. The COVID-19 pandemic significantly accelerated the adoption of online pharmacies in India. National lockdowns and restricted access to conventional pharmacies encouraged consumers to obtain medicines through digital platforms, while the introduction of the Telemedicine Practice Guidelines in 2020 further strengthened the use of digital healthcare services [18–23]. Despite this rapid expansion, India's regulatory framework for online pharmaceutical retailing remains incomplete. Challenges related to prescription verification, counterfeit medicine detection, pharmacist involvement, and data privacy continue to affect patient safety and public confidence [24–27].

Correspondence to: Dr. Ganesan Subramaniyan, Professor cum Principal, Department of Pharmaceutical Chemistry, KG College of Pharmacy and Research Institute, Villupuram, Tamil Nadu - 605203

Email: sganesh770@gmail.com

©2026 Creative Commons Attribution-Non Commercial 4.0 International License (CC BY-NC-ND 4.0).

Access this article online

Received – 14th July 2026
Initial Review – 16th July 2026
Accepted – 11th August 2026

Quick Response Code

DOI:***

Formulation and Evaluation of Medicated Syrup Using *Kalanchoe Pinnata* and *Moringaoleifera*

¹PRADEEPA T * ²BENCIYA MARY J, BHARATHI S, BOOJA R,
KAVIYA D SURENDAR G, PARTHASARATHY P, CHANDRASEKAR S
BHAVADHARAN LJ

¹Assistant Professor, Department of Pharmaceutics, KG college of Pharmacy and Research Institute
²B.Pharm Final Year Students, KG college of Pharmacy and Research Institute

Date of Submission: 07-03-2026

Date of Acceptance: 19-03-2026

I. INTRODUCTION

This research focuses on the formulation and evaluation of a herbal syrup containing *Kalanchoe pinnata* extract, targeting urolithiasis (renal calculus) management. *Kalanchoe pinnata*, widely recognized for its anti-inflammatory, nephroprotective, and antimicrobial properties, is a promising therapeutic agent for urinary and renal conditions. The objective was to develop a stable, palatable, and patient-friendly dosage form to enhance compliance, particularly for individuals with urinary tract disorders and kidney stones. The syrup formulation was prepared using a standardized ethanolic extract of *Kalanchoe pinnata*, sucrose, Tri sodium citrate, glycerine and sodium benzoate as key excipients. The formulation underwent rigorous evaluation for physical and chemical stability, viscosity, pH, microbial safety, and overall acceptability¹. Results showed a stable pH (5.97), suitable viscosity for ease of administration, and excellent microbial stability over an extended shelf life. Preliminary findings indicated that the syrup effectively supports urinary health, with potential to dissolve renal calculi and alleviate UTI symptoms. This novel formulation bridges traditional herbal medicine and modern pharmaceutical practices, offering a convenient and effective treatment option for urinary and renal disorders.¹ Herbal medicines have gained significant attention in recent years due to their natural origin, minimal side effects, and broad therapeutic potential. Among these, *Kalanchoe pinnata* (Bryophyllum pinnatum) holds a prominent place in traditional medicine for its diverse pharmacological properties, including anti-inflammatory, antimicrobial, nephroprotective, and wound healing activities. This plant is rich in bioactive compounds such as flavonoids (quercetin, kaempferol), alkaloids, phenolic acids (caffeic acid, ferulic acid), triterpenoids, and bufadienolides,

which contribute to its therapeutic potential. Renal calculus (kidney stones) and UTI (urinary tract infection) inflammation of the urinary tract are prevalent health issues that significantly impact quality of life. Existing treatments, while effective, are often associated with high costs and adverse effects, driving the demand for safer, more affordable alternatives. *Kalanchoe pinnata* has demonstrated significant potential in dissolving renal calculi, reducing inflammation, and providing nephroprotection due to its bioactive components. Traditional preparations of *Kalanchoe pinnata*, such as teas or infusions, face challenges in terms of stability, standardization, and patient compliance. Therefore, this study aims to develop a stable and patient-friendly *Kalanchoe pinnata* syrup for the management of UTI and Urolithiasis (Renal calculus)². *Moringa oleifera* commonly known as drumstick belongs to the Moringaceae family. All parts of plant were used commonly in cooking and various home remedies. A number of medicinal properties attributed to different parts of *M. oleifera* like leaf, fruit, flowers, root, bark and seed oil have been used for mixture of ailments have been recognized by Ayurvedic and unani medicines. There are various biological properties ascribed to different parts of *M. oleifera* have been reviewed in scientific articles. The leaves of *Moringa oleifera* have been reported to be a valuable source of both macro and micronutrients, rich source of β -carotene, protein, vitamin C, calcium, and potassium and act as a good source of natural antioxidants to this purpose we evaluated diuretic activity of alcoholic extract of *Moringa oleifera* leaves.

II. METHODS AND MATERIAL

1.KALANCHOE PINNATA COLLECTION OF PLANT MATERIAL

Rainy and early monsoon season are considered best time for collection of *kalanchoe pinnata*. Because

DOI: 10.35629/4494-1102253257 | Impact Factor value 7.429 ISO 9001: 2008 Certified Journal Page 253



MOLECULAR DOCKING AND ADMET ANALYSIS OF CUCURBITACIN B AGAINST HMG-CoA REDUCTASE: A COMPARATIVE IN SILICO STUDY WITH PRAVASTATIN AND IMPLICATIONS FOR LIPID-LOWERING AND PROGERIA MANAGEMENT

Aruna J.*¹, Afzal Khan H.², Abirami A.³, Kalaimani P.⁴, Swedha S.⁵, Vimala M.⁶

¹Associate Professor, Department of Pharmacology, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamilnadu, India.

^{2,3,4,5,6}UG Students KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamilnadu, India.

Article Info: Received: 10 July 2026,

Revised: 30 July 2026,

Accepted: 20 August 2026

*Corresponding Author: Aruna J.

Associate Professor, Department of Pharmacology, KG College of Pharmacy and Research Institute,

Ashokapuri, Villupuram, Tamilnadu, India.

DOI: <https://doi.org/10.5281/zenodo.22211071>



Citation:

Aruna J.*¹, Afzal Khan H.², Abirami A.³, Kalaimani P.⁴, Swedha S.⁵, Vimala M.⁶. (2026). Molecular Docking And Admet Analysis Of Cucurbitacin B Against Hmg-Coa Reductase: A Comparative In Silico Study With Pravastatin And Implications For Lipid-Lowering And Progeria Management. International Journal of Clinical and Pharmaceutical Innovations, 1(6), 133-142.

ABSTRACT

Hyperlipidemia and Hutchinson-Gilford Progeria Syndrome (HGPS) are mechanistically distinct disorders that converge at a common metabolic node, the mevalonate pathway, specifically at HMG-CoA reductase. While statins - such as pravastatin, remain the standard inhibitors of this enzyme. A natural triterpenoid, such as cucurbitacin B (a bioactive compound from *Cucurbita pepo*) have demonstrated diverse pharmacological properties but remain unexplored as HMG-CoA reductase inhibitors. This study aimed to compare the binding affinity, pharmacokinetic profile and toxicity of cucurbitacin B against pravastatin using molecular docking and ADMET analysis. The 3D structures of the both compounds were retrieved from PubChem database and human HMG-CoA reductase was taken as the target for molecular docking. Predictive models including SwissDock and MzDock were employed to carry out molecular docking, whereas, the absorption, distribution, metabolism, excretion, and toxicity (ADMET) properties were predicted using SwissADME and ProTox 3.0 servers. Cucurbitacin B demonstrated a better binding affinity than pravastatin with a score of -7.398 kcal/mol and -5.858 kcal/mol using SwissDock and a score of -8.2 and -7.7 kcal/mol using MzDock respectively. It formed hydrophobic, hydrogen bond, and salt bridge interactions with amino acid residues of the enzyme active site. The ADMET properties of cucurbitacin B were found to be better than those of pravastatin with an exception that it exhibited a higher molecular weight (547.58 versus 406.54 g/mol), higher lipophilicity (4.79 versus 1.27), poor gastrointestinal absorption, but the oral bioavailability of Cucurbitacin B can be improved using advance drug delivery technology like micelles or nanoparticles-based formulation. It was also predicted to have a low oral LD50 (14 mg/kg, class 2) compared to pravastatin (8939 mg/kg, class 6), this highlighting a key safety concern. These findings suggest that cucurbitacin B may represent a potential lead scaffold for HMG-CoA reductase targeted investigation in Hyperlipidemia and HGPS; however, its predicted toxicity highlights the need for further safety evaluation and structural optimization.

KEYWORDS: Cucurbitacin B; Pravastatin; HMG-CoA reductase; Molecular Docking; ADMET; Hutchinson-Gilford Progeria Syndrome; Hyperlipidemia; Mevalonate pathway.



Hutchinson–Gilford Progeria Syndrome: Molecular Basis, Clinical Spectrum, and Emerging Therapeutic Strategies — A Comprehensive Review.

Aruna J^{*1}, Afzal Khan H², Abirami A³, Kalaimani P⁴, Swedha S⁵, Vimala M⁶

¹Associate Professor, Department of Pharmacology, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamilnadu, India.

^{2,3,4,5,6}UG Students KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamilnadu, India.

Received: 14 June 2026

Revised: 26 June 2026

Accepted: 15 July 2026

ABSTRACT

Hutchinson–Gilford Progeria Syndrome (HGPS) is an ultra-rare, invariably fatal disorder of premature aging that arises from a spontaneous mutation in the LMNA gene, most commonly the c.1824C>T substitution in exon 11. Although this change does not alter the encoded amino acid, it activates a cryptic splice site that generates progerin, a truncated and permanently farnesylated form of lamin A. Progerin accumulates at the nuclear envelope, distorting nuclear architecture and driving accelerated cellular senescence across multiple tissues. Affected children present with growth failure, alopecia, sclerotic skin, skeletal abnormalities, and a characteristic aged facial appearance, but cardiovascular disease, chiefly accelerated atherosclerosis, remains the dominant cause of death, typically before the age of fifteen. Diagnosis rests primarily on clinical recognition, confirmed by molecular genetic testing for the causative LMNA mutation. The approval of lonafarnib, a farnesyltransferase inhibitor, in 2020 marked the first disease-modifying therapy, extending survival by roughly 1.6 years, an effect further supported when combined with pravastatin and zoledronic acid. Supportive management, including physiotherapy, nutritional support, and close cardiovascular surveillance, remains central to care. Investigational strategies, including CRISPR-based gene and base editing, RNA-targeting approaches such as RfxCas13d, autophagy activators, and novel molecular targets including ICMT, are being explored to move beyond symptom control toward correction of the underlying defect. This review consolidates current understanding of the molecular pathogenesis, clinical features, diagnostic approaches, and therapeutic landscape of HGPS, and highlights the research priorities needed to translate emerging strategies into clinical benefit.

Keywords: Progerin; LMNA gene; Lonafarnib; Farnesyltransferase inhibitor; Premature aging; Gene therapy.

INTRODUCTION

Hutchinson–Gilford Progeria Syndrome (HGPS), commonly known as Progeria, is an extremely rare genetic disorder characterized by dramatically accelerated aging beginning in early childhood (1,2). The name is derived from the Greek roots pro ('before') and gears ('old age') (3). HGPS belongs to a broader group of progeroid syndromes, disorders in which children appear normal at birth but develop features of premature aging within the first years of life (4). Clinical features include growth retardation, alopecia, sclerotic and wrinkled skin, prominent superficial vasculature, loss of subcutaneous fat, joint contractures, skeletal abnormalities, and a characteristic aged facial appearance. Many of these features are progressive, and most affected individuals die prematurely from cardiovascular complications such as myocardial infarction or stroke. Notably, cognitive and intellectual development remain unaffected despite the pronounced physical changes (3,4).

The condition was first described in 1886 by Jonathan Hutchinson, who reported a child with unusual features of premature aging, and was characterized in greater detail by Hastings Gilford in 1897, who coined the term 'Progeria'. In recognition of their contributions, the disorder now bears both their names. These early clinical descriptions laid the foundation for later work elucidating the genetic and molecular basis of the disease (5,6).

HGPS arises from a mutation in the LMNA gene, which encodes lamin A, a structural protein essential for maintaining normal nuclear architecture. The mutation results in production of an abnormal protein, progerin, which disrupts nuclear function and drives accelerated cellular aging. Lonafarnib, a farnesyltransferase inhibitor that reduces the toxic accumulation of progerin, became the first FDA-approved drug for HGPS and has been shown to improve survival, although no curative treatment currently exists (7). Combination regimens incorporating pravastatin and zoledronic acid, which act on related steps of the farnesylation pathway

Page | 174

A Review on Investigation of Pharmacological Actions of Cucurbita Pepo (Pumpkin) in Acceleration of Wound-Healing by Anti-oxidant, Anti-Inflammatory, Anti-Microbial and Tissue Regeneration properties

Aruna¹, Afzal Khan², Abirami³, Swedha⁴, Vimala⁵, Kalaimani⁶

¹Associate Professor, Department of Pharmacology, KG College of Pharmacy and Research Institute, Tamilnadu, India (Corresponding Author)

^{2,3,4,5,6}Department of Pharmacology, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram

Abstract: Pumpkin (*Cucurbita pepo*) is an annual plant. It belongs to the family Cucurbitaceae. Nutritionally, *C. pepo* is rich in vitamins, minerals, carbohydrates, proteins, and fats, making it an important food source with significant health benefits and therapeutic potential. Historically, people in Africa and Asia have widely used herbal remedies made from *Cucurbita* species to treat various diseases. These include fever, whooping cough, urinary issues, scurvy, prostatic hyperplasia, rheumatism, hemorrhoids, miscarriage, prostate cancer, constipation, and even blindness. Pumpkin is also known as a functional food because it offers a high number of calories, proteins, carotenoids, minerals, fiber, and phytochemicals. These nutrients help manage support overall health. Most of research shows that *C. pepo* has various biological effects including anti-diabetic, anti-viral, anti-parasitic, anti-inflammatory, antibacterial, antioxidant, anthelmintic and also supports urinary and prostate health and skin health. The review of this study revealed that the *C. pepo* extract has shown wound healing property by anti-inflammatory, anti-oxidant, anti-microbial and tissue regeneration properties.

Keywords: Cucurbita pepo, Nutrient rich, Wound healing, Antioxidant, Anti-inflammation, Antibacterial

1. Introduction

Before this study of review on Investigation of wound healing property, we must know about the pumpkin.

Pumpkin is an annual herbaceous plant that produces different types,

- Winter squash (such as pumpkin and acorn squash)
- Summer squash (such as zucchini and pattypan squash)

Nowadays the Pumpkins are eaten raw, baked or as a snack. But almost all parts of the pumpkin plant (*Cucurbita pepo*)

including the seeds, fruit, and leave have medicinal uses for humans i.e.

- Supporting the Urinary and Prostate Health
- Support Heart Health
- Anti-diabetic
- Anti-parasitic/ Anti-malarial activity
- Anthelmintic
- Anti-bacterial
- Anti-fungal
- Treatment of Rheumatism
- Treatment of ulcer.
- Treatment of Facial Acne



Original Article

Development and Validation of a UHPLC Method for the Simultaneous Estimation of Hydrochlorothiazide and Amlodipine in Solid Dosage Forms

Boopathiraja R¹, Ezhilkumar E¹, Krishna S¹, Nehamagimai Nisha A¹, Priyadarshini R¹, Sivaraj A¹, Thrisha S¹, Vinitha R¹, Ganesan S², Medapati Vijaya Vara Prasad³, Kathiravan Mani⁴From, ¹Department of Pharmaceutical Chemistry, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamil Nadu, India, ²Principal, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamil Nadu, India, ³Professor, Department of Pharmaceutical Chemistry, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamil Nadu, India, ⁴Associate Professor, Department of Pharmaceutical Chemistry, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamil Nadu, India.

ABSTRACT

Background: Hypertension, a leading global cardiovascular risk factor, is commonly managed with combination pharmacotherapy. Hydrochlorothiazide (HCT), a thiazide diuretic, and Amlodipine (AML), a calcium channel blocker, are frequently co-prescribed in fixed-dose tablet formulations to achieve optimal blood pressure control. Despite their widespread co-administration, a validated Ultra-High-Performance Liquid Chromatography (UHPLC) method for the simultaneous quantification of both drugs in solid dosage forms was not available in the published literature at the time of this investigation. **Methodology:** A UHPLC method was developed and validated on an Agilent system using a C8 column (4.6 mm × 50 mm, 3 µm) operated under isocratic conditions. The mobile phase consisted of 0.02 M potassium dihydrogen orthophosphate buffer (pH 3.0) and acetonitrile (60:40, v/v) delivered at 0.5 mL/min. Detection was performed at 230 nm with an injection volume of 2 µL. Validation was executed in accordance with ICH Q2(R1) guidelines, encompassing system suitability, specificity, linearity, precision, accuracy, and robustness. **Results:** Hydrochlorothiazide and Amlodipine were resolved at retention times of 1.810 min and 2.911 min, respectively, within a 5-minute run. Linearity was established over 50–150% of the nominal concentration; correlation coefficients were $R^2 = 1.0000$ (HCT) and $R^2 = 0.9993$ (AML). Assay recovery values were 100.33% (HCT) and 100.07% (AML). Repeatability %RSD values were 0.16% and 0.07%, respectively. Mean accuracy recoveries ranged from 100.60–101.28% (HCT) and 99.57–100.97% (AML). All robustness parameters remained within acceptance criteria under deliberate variations in flow rate and detection wavelength. **Conclusion:** The proposed UHPLC method is rapid, precise, accurate, and specific for the simultaneous estimation of hydrochlorothiazide and amlodipine. It satisfies ICH validation requirements and is suitable for routine quality control analysis in pharmaceutical manufacturing settings.

Key words: Hydrochlorothiazide; Amlodipine; UHPLC; Method Development; Method Validation; ICH Guidelines; Simultaneous Estimation; Solid Dosage Forms.

Hypertension remains one of the most prevalent non-communicable diseases worldwide and a major contributor to cardiovascular morbidity and mortality. Recent global estimates indicate that approximately 1.4 billion adults are affected, with a substantial proportion remaining undiagnosed or inadequately controlled, particularly in low- and middle-income countries [1]. Effective management of hypertension is therefore a critical public health priority, with current therapeutic strategies emphasizing combination pharmacotherapy to achieve optimal

blood pressure control [2].

Among the commonly prescribed antihypertensive agents, thiazide diuretics and calcium channel blockers occupy a central role in treatment guidelines [3]. Hydrochlorothiazide (HCT), a thiazide diuretic, exerts its antihypertensive effect by inhibiting sodium reabsorption in the distal convoluted tubule, leading to reduced plasma volume and peripheral resistance [4]. Amlodipine (AML), a long-acting dihydropyridine calcium channel blocker, lowers blood pressure by inhibiting

Access this article online

Received – 07th April 2026Initial Review – 08th April 2026Accepted – 10th April 2026

Quick Response Code



Correspondence to: M. Kathiravan, Department of Pharmaceutical Chemistry, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamil Nadu, India.

Email: kathirapharmacy@gmail.com

Original Article

Comparative Evaluation of Marketed Paracetamol Tablet Brands

Ganesan Subramaniyan¹, Senthil Kumar M², Mariya Rextan R³, Dhivagar S³, Karpagavalli P³, Boomika S³, Thilak Kumar K³, Maha Priyadarshini R³, Nisha A³, Nethaji R B³, Karthiga G³From, ¹Principal, ²Assistant Professor, ³Department of Pharmaceutical Chemistry, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamil Nadu, India

ABSTRACT

Background: The therapeutic reliability of immediate-release solid dosage forms is critically dependent on both their physicochemical quality attributes and the kinetics of in-vitro drug release under physiologically relevant conditions. Paracetamol (acetaminophen) remains among the most widely dispensed analgesics and antipyretics globally, yet inter-brand variability in formulation composition and manufacturing processes may influence dissolution behaviour and, consequently, clinical performance. **Objective:** This study aimed to conduct a systematic comparative evaluation of three commercially available Paracetamol 500 mg immediate-release tablet brands (Brand A, B, and C) procured from the Indian pharmaceutical market, assessing both compendial quality parameters and multimedia in-vitro dissolution profiles across multiple simulated gastrointestinal pH environments. **Methods:** Physical quality evaluation encompassed weight variation, tablet thickness, hardness, friability, and disintegration time, conducted in accordance with Indian Pharmacopoeia (IP) guidelines. Dissolution testing was performed using IP Apparatus II (Paddle) at $37 \pm 0.5^\circ\text{C}$ and 50 rpm in four dissolution media, Purified Water, 0.1N HCl, pH 4.5 Acetate Buffer, and pH 5.8 Phosphate Buffer with spectrophotometric quantification at 247 nm. **Results:** All three brands complied with IP weight variation limits ($\pm 5\%$). Inter-brand differences were observed in hardness (7.20–11.40 kg/cm²), friability (0.13–0.85%), and disintegration time (40 seconds to 3 minutes 06 seconds). In all four dissolution media, all brands released $\geq 80\%$ of the labelled drug content within 30 minutes, fulfilling the IP dissolution criterion. Brand C, characterized by the highest friability and shortest disintegration time, consistently exhibited the most rapid dissolution profile. Brand B demonstrated the most uniform release pattern, while Brand A achieved robust complete dissolution with the highest structural integrity. **Conclusion:** The study establishes a demonstrable correlation between physical formulation parameters, particularly friability and disintegration behaviour and in-vitro dissolution kinetics. Multimedia testing confirmed that the dissolution profiles of all three brands are largely pH-independent, attributable to paracetamol's inherently high aqueous solubility. All evaluated brands satisfy IP compendial standards and may be considered pharmaceutically equivalent and therapeutically interchangeable.

Keywords: Paracetamol, immediate-release tablets, in-vitro dissolution, pharmaceutical equivalence, pH-independent dissolution.

Oral solid dosage forms remain the most widely used pharmaceutical preparations owing to their convenience, stability, cost-effectiveness, and patient compliance [1]. Among these, immediate-release (IR) tablets are specifically formulated to disintegrate and release the active pharmaceutical ingredient rapidly after oral administration, thereby ensuring prompt therapeutic action [2,3]. The quality and performance of IR tablets are greatly influenced by formulation variables such as excipient composition, manufacturing process, compression force, hardness, friability, and disintegration characteristics [4]. These parameters collectively affect the dissolution behaviour of the dosage form,

which in turn plays a critical role in determining drug bioavailability and therapeutic efficacy [4]. Paracetamol (acetaminophen; 4'-hydroxyacetanilide) is one of the most extensively used over-the-counter analgesic and antipyretic drugs worldwide [5]. It is commonly prescribed for the management of mild to moderate pain and fever and is considered a first-line therapeutic agent due to its favourable safety profile when administered at recommended doses [6]. Because of its widespread clinical use across paediatric, adult, and geriatric populations, maintaining consistent quality and performance among marketed paracetamol tablet formulations is of significant pharmaceutical and public health importance [7,8].

Access this article online

Received – 12th May 2026Initial Review – 4th July 2026Accepted – 9th July 2026

Quick Response Code

Correspondence to: Dr. S. Ganesan, Principal, KG College of Pharmacy and Research Institute, Ashokapuri, Villupuram, Tamil Nadu, India

Email: sganes770@gmail.com