wjpmr, 2025, 11(9), 538-548

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH
www.wjpmr.com

SJIF Impact Factor: 6.842

Research Article
ISSN (O): 2455-3301
ISSN (P): 3051-2557

FORMULATION AND EVALUATION OF SALICYLIC ACID AND KOJIC ACID AS GEL NOVEL DRUG DELIVERY SYSTEMS FOR TREATMENT OF ACNE AND WHITENING SKIN EFFECT

Abdalwali Ahmed Saif [1], Maged Alwan Noman[1,2] and Mahmoud Mahyoob Alburyhi[1*]

[1]Professor Dr. of Pharmaceutics and Industrial Pharmacy, Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Sana'a University, Sana'a, Yemen.
[2]Professor Dr. Department of Pharmacy, Faculty of Medical Sciences, Al-Yemenia University, Yemen.

***Corresponding Author: Prof. Dr. Mahmoud Mahyoob Alburyhi**
Professor Dr. of Pharmaceutics and Industrial Pharmacy, Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Sana'a University, Sana'a, Yemen.

Article Received on 23/07/2025 **Article Revised on 12/08/2025** **Article Accepted on 01/09/2025**

ABSTRACT
The aim of this study was to formulate and develop a gel containing salicylic acid and kojic acid for the treatment of acne and skin lightening. This preparation contains active ingredients that give the best results for the skin. Five gel formulations were evaluated for various parameters such as color, appearance, consistency, pH, viscosity, applicability, irritancy test, and stability studies. The results showed that the gel was non-irritant, stable, and possessed activity in treating acne and skin lightening. Formulation F4 was found to be the best due to its balanced viscosity, ideal pH, ease of application, and excellent clinical performance. We conclude that the gel containing salicylic acid and kojic acid prepared considered an effective and safe formulation for treating acne and skin lightening.

KEYWORDS: Kojic acid, Salicylic acid, Gel, Anti-acne.

INTRODUCTION

Background of Gel for Acne Treatment[1-50]

Acne: The name acne comes from the Greek word "akme," which means "peak or apex" and refers to gemnetic or acquired affections of the pilosebaceous units. Acne vulgaris is the proper term for acne. It is typified by the development of both inflammatory and non-inflammatory lesions of the sebaceous glands and hair follicles, which are together known as the pilosebaceous unit. There are five types of acne: comedonal, papular, pustular, cystic, and nodular. Acne vulgaris, a hormone-mediated inflammation of the sebaceous glands and hair follicles, causes giant papules (nodules), blackheads and whiteheads (comedones), pinhead-sized papules (papules), scaly red skin (seborrhea), and rarely scarring (pimples).

Gels: Gels are semi-rigid systems in which a three-dimensional network of interlacing particles or solvated macromolecules of the dispersed phase limits the dispersing medium's motion. "Gel" is derived from "gelatin," and the words "gel" and "jelly" can be traced back to the Latin word "gelu," which means "frost," and "gel are," which means "freeze" or "congeal". To provide the most effective cutaneous and percutaneous medication delivery, gels are used. Enzymatic activity and drug interactions with food and beverages can be avoided using gels. They can be used to provide medications orally when the oral route is not suitable.

Gel is only used for treatment of skin problems but when one gel consists of all those best ingredients which gives all skin problems solution. This gel contains one of the best ingredients which gives skin whitening-lightening effect as well as reducing acne and it exfoliates skin very well.

Skin is a major part of the body, which indicates the health of an individual. Skin consists of materials such as collagen, elastin, and other essential compounds, so a balanced formulation is required for the skin to keep it clear, glossy, and healthy.

Salicylic acid is an organic compound with the formula HOC6H4COOH. A colorless (or, white), bitter-tasting solid, it is a precursor to and a metabolite of acetylsalicylic acid (aspirin). Salicylic acid topical is used to treat many skin disorders, such as acne, dandruff, psoriasis, seborrheic dermatitis of the skin and scalp, calluses, corns, common warts, and plantar warts, depending on the dosage form and strength of the preparation.

This study deals with the formulation and characterization of a topical gel preparation containing salicylic acid and kojic acid. Salicylic acid gives exfoliation for skin. Exfoliation is most important because when damaged skin gets exfoliated, then new skin comes over, and it looks glowing and healthy.

Kojic acid gives skin lightening effect also it removes blemishes and pigmentation of skin. Acne may be classified into several types. All ingredients included in this preparation give the best and healthy glowing skin.

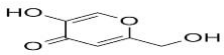
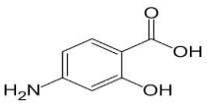
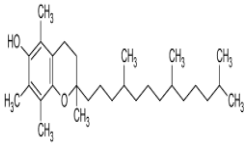
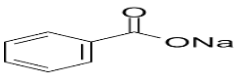
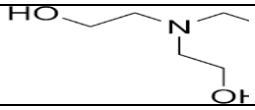
The combination of salicylic acid and kojic acid in a topical gel formulation presents a dual approach: treatment of acne lesions and improvement of skin tone. The formulation process involves careful selection of gelling agents, preservatives, and stabilizers to ensure product efficacy and safety.

MATERIALS AND METHODS

Materials

As shown in Table 1.

Table 1: List of Ingredients.

No	Ingredients	Uses	Structure
Step -1 Gel Base			
1	**Carbopol 934**	Thickening Agent	
2	**Distill Water**		
Step 2-Formulation of Gel Base			
3	**Kojic acid**	Decreased melanin production may have a lightening effect on the skin.	
4	**Salicylic acid**	It is a keratolytic (peeling agent), causes shedding of the outer layer of skin. Topical (for the skin) is used in the treatment of acne.	
5	**Vitamin E**	It acts as a powerful antioxidant that protects skin from free radical damage, moisturizes, aid in wound healing and scar reduction.	
6	**Na benzoate**	Preservative	
7	**Triethanolamine**	Emulsifier	

Formulation and Evaluation of Gel Drug Delivery System[40-182]

Preformulation study before formulating a product, the physical and chemical properties of a drug substance have undergone some preformulation testing. It is the first step in rational development of dosage form.

Method of Preparation of Gel

Preparation of Active Ingredients

The gel was prepared using Carbopol 974 as a gelling agent. Accurately weighed amount of Carbopol974 was dissolved in distilled water and allowed to swell for a day, then stirred to form a gel.

Gel formulations containing salicylic acid and kojic acid were prepared using a simple gel preparation method. Five different gel formulations (F1 to F5) were prepared, each containing varying concentrations of active ingredients as shown in Table 2.

Table 2: Composition of Gel Formulations.

No	Ingredients	F1	F2	F3	F4	F5
1	Salicylic Acid	0.5	1	2	1	1.5
2	Kojic Acid	0.5	1	2	1	1
3	Carbopol 974	4	4	3	3	3
4	Triethanolamine	Qs	Qs	Qs	Qs	Qs
5	Propylene Glycol	5	10	20	10	10
6	Na benzoate	0.2	0.2	0.2	0.2	0.2
7	Vitamin E	1	1.5	2	2.5	2.5
8	Distilled water	89.8	82.3	70.8	82.3	81.8

Method of Preparation of Gel Containing Active Ingredients

Step 1: The active ingredients (salicylic acid and kojic acid) were dissolved in the gel base.

Step 2: Triethanolamine was added to adjust the pH of the gel to the desired range (4.7-5.75).

Step 3: The two solutions were mixed using a glass rod.

Preparation of Different Gel Formulations

Five different gel formulations were prepared using different concentrations of Carbopol 974 (0.5%, 1%, 2%, 3%, 4%).

Evaluation of Different Gel Formulations

The different gel formulations were evaluated for their general appearance, pH, spreadability, and skin irritation.

General Appearance

The physical appearance of gel formulation is critical for consumer acceptance. Sensory characteristics such as color, presence or absence of odor, and consistency are evaluated to determine the overall aesthetics of the product.

pH Test

The pH measurements of the gel were carried out using a digital pH meter by dipping the glass electrode completely into the gel system to ensure that the pH falls of the prepare formulation ranged within the optimal range for skin and found to be typically between 5.5 and 5.75, which are considered acceptable to avoid the risk of irritation upon application.

Skin Irritation Test

The presence of skin irritation in gel formulation is un-acceptable by volunteer. In-vitro skin irritation test method as in [***Punasiya Rakesh, et al., 2014***], and also performed on human volunteers, with the gel formulation applied to the skin of the hand and face. The product show no any signs of undesirable effects, such as irritation or discomfort.

Viscosity Test

Viscosity of all gels formulation were determined using Brookfield viscometer.

Spreadability Test

The spreadability of two enhanced gel formulations F4 and F5 were tested and on volunteers' skin.

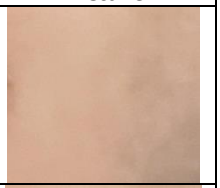
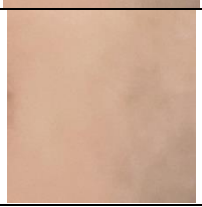
RESULT AND DISCUSSION

Characterization of Gel Formulations

The observations were made to determine whether the gel spread smoothly and easily, and the results show a very good, or excellent spreadability as shown in Table 3.

Table 3: Final Observations of Gel Formulations.

No.	Parameters	Observation
1	Color	Transparent
2	Odour	Characteristic
3	Consistency	Good
4	pH	5.5-5.75
5	Viscosity	6300-8450 cP
6	Spreadability	20.5-25.9 cm^2
7	Washability	Easily washable
8	Irritability	Non-irritant

Today	Picture	Today	Picture
1		8	
2		9	
3		10	

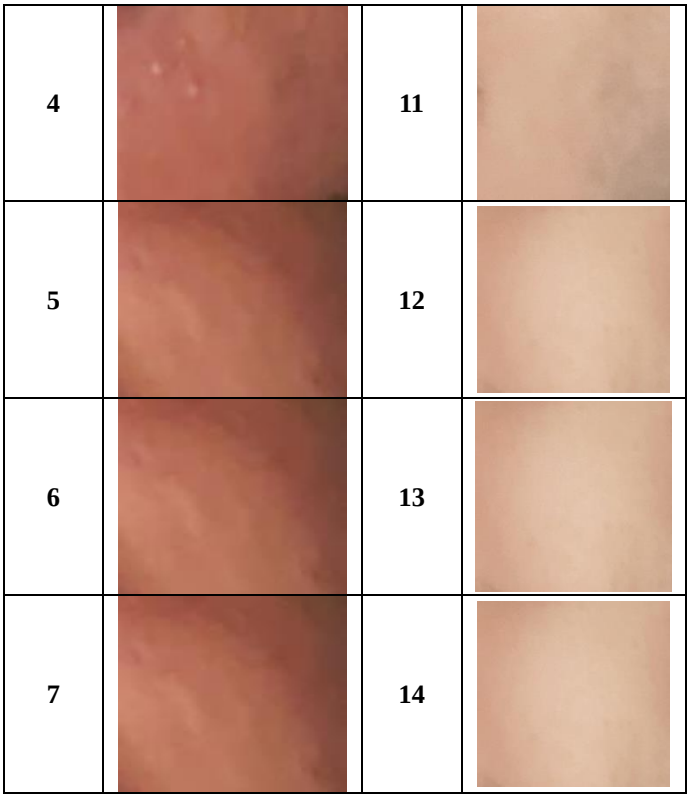


Fig. 1: Comparison of Facial Images Before and After Using Acne Treatment Gel Case.

The results showed that the gel containing salicylic acid and kojic acid has positive effects on the skin as shown in Figure 1. In order to cure acne, a topical synthetic gel was developed. Due to its capacity to exfoliate and unclog pores, salicylic acid is frequently found in acne treatments. The gel has good physical qualities and was simple to make. It was skin-friendly with a pH of 5.7, had a smooth and even texture, and distributed easily. The formulation is stable since stability testing revealed no phase separation. The gel's combination of salicylic acid and kojic acid may provide effectively treating acne and skin whitening effect.

CONCLUSION

The main objective of this research was to develop a gel containing salicylic acid and kojic acid to improve skin appearance. Five different gel formulations (F1-F5) were developed and evaluated to determine the most effective and safe formulation. The results showed that formulations F4 and F5 were the most balanced in terms of clinical effectiveness, skin lightening properties, and user comfort.

REFERENCES

1. Bhatia A, Deepa M, Saini R. Formulation and evaluation of topical gel of salicylic acid and clindamycin phosphate for treatment of acne vulgaris. International Journal of Drug Development and Research., 2012; 4(3): 151–157.
2. Dubey I, Bhadauria RS, Chauhan CS. Formulation and evaluation of salicylic acid and urea gel for treatment of psoriasis. Current Research in Pharmaceutical Sciences. Current Research in Pharmaceutical Sciences., 2012; 03: 166-170.
3. Joshi MS, Kale MB, Patil PM. Formulation and Evaluation of Topical Gel of Salicylic Acid and Clindamycin for Acne Treatment. International Journal of Drug Development and Research., 2016; 8(1): 88–94.
4. Saeedi M, Eslamifar M, Khezri K. Kojic acid applications in cosmetic and pharmaceutical preparations. Biomedicine & Pharmacotherapy., 2019; 110: 582–593.
5. Patel H, Panchal MS, Shah S, Vadalia KR. Formulation and Evaluation of Transdermal Gel of Sildenafil Citrate. International Journal of Pharmaceutical Research & Allied Sciences., 2012; 1: 103-118.
6. R Bhramaramba, Sudheer Babu, Ch Divya Naga Deepthi. Formulation and Evaluation of Herbal Gel Containing Terminalia chebula Retz., Leaves Extract, Scholars Academic Journal of Pharmacy (SAJP) Sch. Acad. J. Pharm., 2015; 4 (3): 172-176.
7. Punasiya Rakesh, Yadav Amid, Gaurav Krishna, Pillai Sujit. Formulation and evaluation of herbal gel containing extract of hibiscus syriacus, research journal of pharmacy and technology., 2014; 7(3) 296-300.
8. Jadhav VD, Talele Swati G, Bakliwal Akshada A, Chaudhari GN. Formulation and Evaluation of Herbal Gel Containing Leaf Extract of Tridax Procumbens, J. Pharm. BioSci., 2015; 3: 65-72.
9. Aruna MS, Sravani A, Resshma V, Priya NS, Prabha MS, Rao NR. Formulation and evaluation of herbal

acne gel. World J Pharm Res., 2015; 14; 4(5): 2324- 2330.
10. Aggnihotri S. Formulation and development of botanicals-based herbal serum. Pharmaspire., 2021; 13: 211-217.
11. Mate A, Ade P, Pise A, More S, Pise S, Kharwade R. Formulation and evaluation of polyherbal gel for the management of acne. Int J Curr Res Rev., 2021; 13(4): 117-122.
12. Nand P, Drabu S, Gupta RK, Bhatnagar A, Ali R. In vitro and in vivo assessment of polyherbal topical gel formulation for the treatment of acne vulgaris. International Journal of Drug Delivery., 2012; 1; 4(4): 434.
13. Saviuc C, Ciubuca B, Dinca G, Bleotu C, Drumea V, Chifiriuc M, Popa M, Pircalabioru GG, Marutescu L, Lazãr V. Development and Sequential Analysis of a New Multi-Agent. Anti-Acne Formulation Based on Plant-Derived Antimicrobial and Anti-Inflammatory Compounds. int J Molecu Sci., 2017; 18: 2-11.
14. Rathod HJ, Mehta DP. A review on pharmaceutical gel. International Journal of Pharmaceutical Sciences. 2015; 1; 1(1): 33-47.
15. Chellathurai BJ, Anburose R, Alyami MH, Sellappan M, Bayan MF, Chandrasekaran B, Chidambaram K, Rahamathulla M. Development of a polyherbal topical gel for the treatment of acne. Gels., 2023,17; 9(2): 163.
16. Sailaja AK, Supraja R. An overall review on topical preparation-gel. Innovat International Journal Of Medical & Pharmaceutical Sciences., 2016; 1(1): 17- 23.
17. Suh DH, Kwon HH. What's new in the physiopathology of acne?. British Journal of Dermatology., 2015; 172: 13-19.
18. Santanu R, Hussan SD, Rajesh G, Daljit M. A review on pharmaceutical gel. The International Journal of Pharmaceutical Research and Bio-Science., 2012; 1(5).
19. Khunt V, Khanpara P, Vyas S, Faldu S. A review: Natural remedies for anti-acne therapy. Journal of Pharmacognosy and Phytochemistry., 2023; 27; 12(1): 45-52.
20. Nasri H, Bahmani M, Shahinfard N, Nafchi AM, Saberianpour S, Kopaei MR. Medicinal plants for the treatment of acne vulgaris: a review of recent evidences. Jundishapur journal of microbiology., 2015; 21; 8(11): e25580.
21. Ak M. A comprehensive review of acne vulgaris. J. Clin. Pharm., 2019; 1(1): 17-45.
22. Suva MA, Patel AM, Sharma N, Bhattacharya C, Mangi RK. A brief review on acne vulgaris: pathogenesis, diagnosis and treatment. Research & Reviews: Journal of Pharmacology., 2014; 4(3): 1-2.
23. Ghasemiyeh P, Noorizadeh K, Dehghan D, Rasekh S, Zadmehr O, Mohammadi-Samani S. The role of different factors in pathophysiology of acne and potential therapeutic options: A brief review. Trends in Pharmaceutical Sciences., 2022; 1; 8(2): 107-118.
24. Kosmadaki M, Katsambas A. Topical treatments for acne. Clinics in dermatology., 2017; 35(2): 173-178.
25. Akhavan A, Bershad S. Topical acne drugs: review of clinical properties, systemic exposure, and safety. American journal of clinical dermatology., 2003; 4: 473-492.
26. Kotiyal A, Tyagi Y, Rao NR. An advance review on salicylic acid ointment for treatment of acne. World J. Pharm. Res., 2020; 9(5): 1940-1949.
27. Kb BH, Ng HE, Patil RT. Review on Aloe Vera. International Journal., 2014; 2(3): 677-691.
28. Heng AH, Chew FT. Systematic review of the epidemiology of acne vulgaris. Scientific reports. 2020; 1; 10(1): 5754.
29. Ogé LK, Broussard A, Marshall MD. Acne vulgaris: diagnosis and treatment. American family physician., 2019; 15; 100(8): 475-484.
30. Misra SK, Dev K, Gupta AK, Kumar A, Prajapati N, Prajapati JP, Kapoor A. Formulation and evaluation of salicylic acid loaded gel for the treatment of acne. Res J Pharm Biol Chem Sci., 2022; 13(4): 78-87.
31. Sreya Rajan V. et al. Preparation& Evaluation of Ketoprofen film forming gel European journal of pharmaceutical & medical research., 2022; 9(9): 212-219.
32. Nyi Mekar Saptarini et al. Development & Evaluation of Anti-Acne Gel Containing Garlic (Allium Sativum) Against Propionibacterium Acnes Asian Journal of Pharmaceutical & Clinical Research., 2017; 10(8).
33. C. Aparna et al. Development & Evaluation of topical formulations of Ashwagandha for antibacterial & antifungal studies Asian Journal of Pharmacy & Pharmacology., 2021; 7(6): 256-260.
34. Miss Sanchita A, Dhobale et al. Formulation and Evaluation of Turmeric Gel. International Journal of Advanced Research in Science, Communication and Technology., 2022; 2(5): 644-647.
35. Taylor M, Gonzalez M, Porter R. Pathways to Inflammation: Acne Pathophysiology, Eur J Dermatol., 2011; 21(3): 323–33.
36. Gordon RD. More than skin deep: advances in transdermal technologies are opening up new avenues of exploration. Pharmaceutical Technology Europe., 2005; 17(11): 60-66.
37. IZ Schroeder, P Franke, UF Schaefer, CM Lehr. Development and characterization of film forming polymeric solutions for skin drug delivery, European Journal of Pharmaceutics and Biopharmaceutics., 2007; 65: 111-21
38. R Guo, Du X, Zhang R, Deng L, Dong A, Zhang J. Bioadhesive film formed from a novel organic inorganic hybrid gel for transdermal drug delivery system, European Journal of Pharmaceutics and Biopharmaceutics., 2011; 79: 574-83.
39. Renata CV, Tatiele K, Silvia GS. Drug transport across skin. In: Muro S. editor. Drug Delivery across Physiological Barriers. Taylor and Francis Group LLC., 2016; 132–4.
40. Sharma N, Agarwal G, Rana A. A review: transdermal drug delivery system a tool for novel

drug delivery system. Int J Drug Dev Res., 2011; 3: 70–84.
41. Dhiman S, Singh GT, Rehni AK. Transdermal Films: a recent approach to new drug delivery system. Int J Pharm Pharm Sci., 2011; 3: 26–34.
42. Tan X, Feldman SR, Chang J. Topical drug delivery systems in dermatology: a review of patient adherence issues. Expert Opin Drug Delivery., 2012; 9: 1263–71
43. Barry BW. Novel mechanisms and devices to enable successful transdermal drug delivery. European journal of pharmaceutical sciences., 2001; 14(2): 101-114.
44. Hadgraft J. Passive enhancement strategies in topical and transdermal drug delivery. International journal of pharmaceutics., 1999; 184(1): 1-6.
45. Touitou E, H Natsheh. Topical Administration of Drugs Incorporated in Carriers Containing Phospholipid Soft Vesicles for the Treatment of Skin Medical Conditions. Pharmaceutics., 2021; 13(12): 21-29.
46. Souto EB. Elastic and ultradeformable liposomes for transdermal delivery of active pharmaceutical ingredients (APIs). International Journal of Molecular Sciences., 2021; 22(18): 43 -50.
47. Richardson LD, M Norris. Access to health and health care: how race and ethnicity matter. Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine: A Journal of Translational and Personalized Medicine., 2010.; 77(2): 166-177.
48. Honeywell-Nguyen PL, Bouwstra JA. Vesicles as a tool for transdermal and dermal delivery. Drug DiscovToday Technol., 2005; 2(1): 67–74.
49. Escobar-Chávez JJ, Díaz-Torres R, Rodríguez-Cruz IM, et al. Nanocarriers for transdermal drug delivery. Research and Reports in Transdermal Drug Delivery., 2012; 1: 3–17.
50. Touitou H.E. Junginger N.D. Weiner M. MezeiLipo-somes as carriers for topical and transdermal delivery, J. Pharm. Sci., 1992; 9: 1189–1203.
51. Miranda W, Maja P, Joke AB. The lipid organization in SC and model systems base on ceramides. In: Enhancement in drug delivery. USA: CRS Press Taylor & Francis Group., 2007; 217-20.
52. Eckert RL. Structure, function, and differentiation of the keratinocyte. Physiol Rev., 1989; 69(4): 1316-46.
53. Baker H, Kligman AM. Technique for estimating turnover time of human stratum corneum. Arch Dermatol., 1967; 95(4): 408-11.
54. Bouwstra JA, de Graaff A, Gooris GS, Nijsse J, Wiechers JW, van Aelst AC. Water distribution and related morphology in human stratum corneum at different hydration levels. J Invest Dermatol., 2003; 120(5): 750-8.
55. Elias PM. Epidermal lipids, barrier function, and desquamation. J Invest Dermatol., 1983; 80: 44.
56. Barry BW. Structure, function, diseases, and topical treatment of human skin. In: Dermatological formulations percutaneous absorption, 1. New York: Marcel Dekker., 1983.
57. Rolland A, Wagner N, Chatelus A, Shroot B, Schaefer H. Site-specific drug delivery to pilosebaceous structures using polymeric microspheres. Pharm Res., 1993; 10(12): 1738-44.
58. Grams YY, Alaruikka S, Lashley L, Caussin J, Whitehead L, Bouwstra JA. Permeant lipophilicity and vehicle composition influence accumulation of dyes in hair follicles of human skin. Eur J Pharm Sci., 2003; 18(5): 329-36.
59. Cullander C, Guy RH. Visualization of iontophoretic pathways with confocal microscopy and the vibrating probe electrode. Solid State Ion., 1992; 53-56: 197.
60. Williams ML, Elias PM. The extracellular matrix of stratum corneum: role of lipids in normal and pathological function. Crit Rev Ther Drug Carrier Syst., 1987; 3(2): 95-122.
61. Fries JH. Chocolate: a review of published reports of allergic and other deleterious effects, real or presumed. Ann Allergy., 1978; 41(4): 195-207.
62. Date AA, Naik B, Nagarsenker MS. Novel drug delivery systems: potential in improving topical delivery of antiacne agents. Skin Pharmacol Physiol., 2006; 19(1): 2-16.
63. Ballangera F, Baudrya P, N'Guyenb JM, Khammaria A, Dréno B. Heredity: a prognostic factor for acne. Dermatology., 2005; 212(2): 145: 9.
64. Simpson NB, Cunliffe WJ. Disorders of the sebaceous glands. In: Burns T, Ed. Rook's textbook of dermatology. 7th ed. Malden, Mass.: Blackwell Science., 2004; pp. 43-75.
65. Adebamowo CA, Spiegelman D, Berkey CS, et al. Milk consumption and acne in adolescent girls. Dermatol Online J., 2006; 12(4): 1.
66. Arbesman H. Dairy and acnethe iodine connection. J Am Acad Dermatol., 2005; 53(6): 1102.
67. Fulton JE Jr, Plewig G, Kligman AM. Effect of chocolate on acne vulgaris. JAMA., 1969; 210(11): 2071-4.
68. Taglietti M, Hawkins CN, Rao J. Novel topical drug delivery systems and their potential use in acne vulgaris. Skin Therapy Lett., 2008; 13(5): 6-8.
69. Chiou WL. Low intrinsic drug activity and dominant vehicle (placebo) effect in the topical treatment of acne vulgaris. Int J Clin Pharmacol Ther., 2012; 50(6): 434-7
70. Lamel SA, Sivamani RK, Rahvar M, Maibach HI. Evaluating clinical trial design: systematic review of randomized vehicle-controlled trials for determining efficacy of benzoyl peroxide topical therapy for acne. Arch Dermatol Res., 2015; 307(9): 757-66.
71. Bary AA, El-Gazayerly ON, Alburyhi MM. A Pharmaceutical Study on Lamotrigine. Ph.D. Thesis, Faculty of Pharmacy, Cairo University., 2009.
72. Alburyhi MM, Raweh SM, Al-Ghorafi MAH, Saif AA, Noman MA. Formulation and Evaluation of Argemone Ochroleuca Extract Cream Naturceutical Delivery Systems as Antimicrobial and Wound

Healing Activity. European Journal of Pharmaceutical and Medical Research., 2025; 12(7): 445-459.
73. Mohamed YAS, Alkhawlani MA, Faisal A, Alburyhi MM. Modern Analytical Techniques Used in Authentication of Yemeni Sider Honey. World Journal of Pharmacy and Pharmaceutical Sciences., 2025; 14(6): 1414-1429.
74. Alburyhi MM, Mohamed YAS, Saif AA, Noman MA. Compatibility Studies with Pharmaceutical Excipients of Amlodipine for the Development of Novel Delivery Systems. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(11): 95-136.
75. Alburyhi MM, Saif AA, Noman MA, AlGhoury ABA. Compatibility Studies with Pharmaceutical Excipients of Chloroquine Phosphate for the Development of Suppositories Novel Drug Delivery Systems. World Journal of Pharmaceutical Research., 2025; 14(14): 1325-1360.
76. Alburyhi MM, Saif AA, Noman MA. Compatibility Studies with Pharmaceutical Excipients of Clopidogrel for the Development of Novel Delivery Systems. World Journal of Pharmaceutical Research., 2025; 14(06): 1448-1486.
77. Alburyhi MM, Saif AA, Noman MA, Yassin SH. Compatibility Studies with Pharmaceutical Excipients of Simvastatin for the Development of Novel Drug Delivery Systems. World Journal of Pharmaceutical Research., 2024; 13(19): 1463-1512.
78. Mohamed YAS, Alburyhi MM, Wadi ZA. Simultaneous Hydrophilic Interaction Thin Layer Chromatographic (Hitlc) Method for Determination of Amlodipine and Furosemide Binary Mixture. World Journal of Pharmacy and Pharmaceutical Sciences., 2025; 14(5): 1175-1183.
79. Alburyhi MM, Salim YA, Saif AA, Noman MA. Furosemide-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmaceutical Research., 2024; 13(22): 1178-1219.
80. Alburyhi MM, Saif AA, Noman MA. Lornoxicam-Excipient Compatibility Studies for Microsponge-Based Drug Delivery Systems Development. World Journal of Pharmaceutical and Medical Research., 2025; 11(4): 70-81.
81. Hamidaddin MA, Alburyhi MM, Noman MA, Saif AA. Formulation and Evaluation of Rosuvastatin Fast Dissolving Tablets. World Journal of Pharmacy and Pharmaceutical Sciences., 2023; 12(9): 2293-2303.
82. Alburyhi MM, Hamidaddin MA, Noman MA, Saif AA, Yahya TA, Al-Ghorafi MA. Rivaroxaban-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. European Journal of Pharmaceutical and Medical Research., 2024; 11(9): 370-404.
83. Bary AA, El-Gazayerly ON, Alburyhi MM. Formulation of Immediate Release Lamotrigine Tablets and Bioequivalence Study. Journal of Chemical Pharm Research., 2013; 5(10): 266–271.
84. Saif AA, Alburyhi MM, Noman MA, Yahya TA, Al-Ghorafi MA. Famotidine-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmaceutical Research., 2024; 13(18): 1346-1408.
85. Alburyhi MM, Noman MA, Saif AA, Al-Ghorafi MA, Al Khawlani MA, Yahya TAA. Formulation and Evaluation of Anti-acne Spironolactone Emulgel Novel Trend in Topical Drug Delivery System. World Journal of Pharmaceutical Research., 2023; 12(22): 96-119.
86. Alburyhi MM, Noman MA, Saif AA, Salim YA, Hamidaddin MA, Yahya TA, Al-Ghorafi MA, Abdullah JH. Lisinopril-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmaceutical Research., 2024; 13(16): 59-111.
87. Al-Ghorafi MA, Alburyhi MM, Saif AA, Noman MA, Yahya TA. Drotaverine-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmaceutical Research., 2024; 13(18): 1285-1340.
88. Alburyhi MM, Noman MA, Saif AA, Hamidaddin MA, Yahya TA, Al-Ghorafi MA. Rosuvastatin Calcium-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmaceutical Research., 2024; 13(13): 1549-1582.
89. Alburyhi MM, Saif AA, Noman MA. Ticagrelor-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(10): 1081-1132.
90. Alburyhi MM, Noman MA, Saif AA, Al-Ghorafi MA, Yahya TA, Yassin SH, AlKhawlani MA. Diclofenac-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmaceutical Research., 2024; 13(14): 1297-1333.
91. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Aloe Vera Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Controlling Diabetes. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(4): 1408-1423.
92. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Curcuma Longa Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Cancer. European Journal of Biomedical and Pharmaceutical Sciences., 2024; 11(6): 37-43.
93. Alburyhi MM, Saif AA, Noman MA, Salim YA, Hamidaddin MA. Formulation and Evaluation of Lisinopril Orally Disintegrating Tablets. World Journal of Pharmacy and Pharmaceutical Sciences., 2023; 12(9): 357-369.
94. Alburyhi MM, Saif AA, Noman MA. Stability Study of Six Brands of Amoxicillin Trihydrate and

Clavulanic Acid Oral Suspension Present in Yemen Markets. Journal of Chemical Pharm Research., 2013; 5(5): 293-296.
95. Alburyhi MM, El-Shaibany A. Formulation and Evaluation of Antitumor Activity of Artemisia Arborescence Extract Capsules as Dietary Supplement Herbal Product Against Breast Cancer. World Journal of Pharmaceutical Research., 2024; 13(3): 95-114.
96. Alburyhi MM, Hamidaddin MA, Saif AA, Noman MA. Formulation and Evaluation of Rivaroxaban Orodispersible Tablets. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(2): 2066-2092.
97. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Aloe Vera Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Cancer. World Journal of Pharmaceutical Research., 2024; 13(8): 1052-1072.
98. Alburyhi MM, El-Shaibany A. Recent Innovations of Novel Drug Delivery Systems for Formulation, Development and Evaluation of Aloe Rubroviolaceae Extract Capsules as Naturaceutical for Hepatoprotective. European Journal of Biomedical and Pharmaceutical Sciences., 2024; 11(4): 53-61.
99. Alburyhi MM, Saif AA, Noman MA, Yahya TA. Formulation, Development and Evaluation of Famotidine Orodispersible Tablets. European Journal of Pharmaceutical and Medical Research., 2023; 10(10): 56-62.
100. Alburyhi MM, Saif AA, Noman MA, Saif RM. Recent Innovations of Delivery Systems for Antimicrobial Susceptibility Study of Ciprofloxacin Biodegradable Formulations for Post-Operative Infection Prophylaxis. European Journal of Pharmaceutical and Medical Research., 2023; 10(9): 32-36.
101. Aboghanem A, Alburyhi MM, Noman MA. Effect of Different Excipients on Formulation of Immediate Release Artemether/Lumefantrine Tablets. Journal of Chemical Pharm Research., 2013; 5(11): 617-625.
102. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Dictyota Dichotoma Extract Medicinal Seaweed Capsules Delivery System as an Advanced Phytotherapy Approach for Cancer. European Journal of Biomedical and Pharmaceutical Sciences., 2024; 11(4): 63-70.
103. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Celery Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Gout. World Journal of Pharmaceutical Research., 2024; 13(11): 2383-2404.
104. Raweh SM, Noman MA, Alburyhi MM, Saif AA. Formulation and Evaluation of Anti-acne Gel of Azadirachta Indica Extract Herbal Product. European Journal of Pharmaceutical and Medical Research, 2024; 11(2): 427-433.
105. Alburyhi MM, Saif AA, Noman MA. Formulation and Evaluation of Ticagrelor Orodispersible Tablets. World Journal of Pharmaceutical Research., 2024; 13(5): 26-55.
106. Alburyhi MM, Saif AA, Noman MA, Yahya TA, Al-Ghorafi MA. Formulation and Evaluation of Drotaverine Orally Disintegrating Tablets. World Journal of Pharmaceutical Research., 2023; 12(18): 66-79.
107. Alburyhi MM, El-Shaibany A. Formulation and Evaluation of Effervescent Granules of Artemisia Arborescence Herbal Product for Foodborne Illness. World Journal of Pharmacy and Pharmaceutical Sciences., 2023; 12(12): 1429-1444.
108. Alburyhi MM, Saif AA, Saif RM. Preformulation Study of Ceftriaxone and Ciprofloxacin for Lipid Based Drug Delivery Systems. EJUA-BA, 2022; 3(4): 339-350.
109. Alburyhi MM, Noman MA, Saif AA. Formulation and Evaluation of Natural Herbal Anti-acne as Gel Delivery Systems. World Journal of Pharmaceutical Research., 2024; 13(21): 1447-1467.
110. Noman MA, Alburyhi MM, Saif AA, Yahya TAA. Evaluation and Drug Stability Studies Some Atorvastatin Tablets Brands Available in Sana'a Market Yemen. World Journal of Pharmaceutical and Medical Research., 2024; 10(12): 231-236.
111. Alburyhi MM, Noman MA, Alemad AF. Preformulation Studies of Cefixime for Dispersible Tablets Delivery System Development. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(12): 75-99.
112. Noman MA, Alburyhi MM, Saif AA, Yahya TAA. Formulation and Evaluation of Polyherbal Extract for Skin Hyperpigmentation as Gel Advanced Delivery Systems. World Journal of Pharmaceutical Research., 2024; 13(22): 1260-1280.
113. Saif AA, Noman MA, Alburyhi MM, Yahya TAA. Evaluation and Drug Stability Studies Some Levocetirizine Tablets Brands Available in Sana'a Market Yemen. World Journal of Pharmaceutical Research., 2024; 13(24): 1009-1022.
114. Alburyhi MM, Noman MA, AA Saif. Formulation and Evaluation of Meloxicam Emulgel Delivery System for Topical Applications. World Journal of Pharmaceutical Research., 2025; 14(4): 1324-1337.
115. Othman AM, Alburyhi MM, Al-Hadad GH. Formulation and Evaluation of Captopril Mouth Dissolving Tablets. European Journal of Pharmaceutical and Medical Research, 2024; 11(1): 18-28.
116. Alburyhi MM, Noman MA, Saif AA, Alemad AF. Dispersible and Orodispersible Tablets Delivery Systems for Antibacterials Development. World Journal of Pharmaceutical Research., 2025; 14(1): 1229-1257.
117. Alburyhi MM, Saif AA, Noman MA, Saif RM. Recent Innovations of Delivery Systems for Antimicrobial Susceptibility Study of Ceftriaxone Biodegradable Formulations for Post-Operative Infection Prophylaxis. European Journal of

Pharmaceutical and Medical Research., 2023; 10(8): 95-99.
118. Al-Ghorafi MA, Alburyhi MM, Saif AA, Noman MA. Meloxicam-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmaceutical and Medical Research., 2025; 11(1): 87-106.
119. Alburyhi MM, Saif AA, Noman MA. Domperidone-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Biomedical and Pharmaceutical Sciences., 2025; 12(3): 250-269.
120. Alburyhi MM, Saif AA, Noman MA. Spironolactone-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmacy and Pharmaceutical Sciences., 2025; 14(3): 871-910.
121. Saif AA, Alburyhi MM, Noman MA. Ketoprofen-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmacy and Pharmaceutical Sciences., 2025; 14(4): 92-123.
122. Alburyhi MM, Saif AA, Noman MA, Yassin SH. Formulation and Evaluation of Simvastatin Orodispersible Tablets. World Journal of Pharmaceutical Research., 2023; 12(16): 1033-1047.
123. Noman MA, Alburyhi MM, Alqubati MA. Preformulation and Characterization Studies of Clopidogrel Active Ingredient for Orodispersible Tablets Development. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(3): 996-1015.
124. Alburyhi MM, El-Shaibany A. Formulation and Evaluation of Anti-peptic Ulcer Capsules of Curcuma Longa Herbal Product. World Journal of Pharmaceutical Research., 2023; 12(22): 76-96.
125. Alburyhi MM, Saif AA, Noman MA, Al Ghoury AA. Formulation and Evaluation of Antimalarial Drugs Suppositories. World Journal of Pharmaceutical Research., 2023; 12(20): 89-108.
126. Alburyhi MM, Saif AA, Noman MA, Saeed SA, Al-Ghorafi MA. Formulation and Evaluation of Diclofenac Orodispersible Tablets. European Journal of Pharmaceutical and Medical Research., 2023; 10(9): 01-06.
127. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Chamomile Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Gout. World Journal of Pharmaceutical and Life Sciences., 2025; 11(04): 215-228.
128. Alburyhi MM, Noman MA, Saif AA. Metronidazole-Excipient Compatibility Studies for Medicated Chewing Gum Delivery Systems Development. European Journal of Pharmaceutical and Medical Research., 2025; 12(4): 567-589.
129. Alburyhi MM, Saif AA, Noman MA, Al-Ghorafi MA. Comparative Study of Certain Commercially Available Brands of Paracetamol Tablets in Sana'a City, Yemen. European Journal of Pharmaceutical and Medical Research., 2018; 5(12): 36-42.
130. Alburyhi MM, Saif AA, Noman MA, Alkhawlani MA. Formulation and Evaluation of Bisoprolol Fast Dissolving Tablets. World Journal of Pharmaceutical Research., 2023; 12(16): 01-10.
131. Schäfer-Korting M, Korting HC, Ponce-Pöschl E. Liposomal tretinoin for uncomplicated acne vulgaris. Clin Investig., 1994; 72(12): 1086-91.
132. Brisaert M, Gabriëls M, Matthijs V, Plaizier-Vercammen J. Liposomes with tretinoin: a physical and chemical evaluation. J Pharm Biomed Anal., 2001; 26(5-6): 909-17
133. Elka T, Biana G. Vesicular carriers enhanced delivery through the skin. In: Enhancement in drug delivery. USA: CRS Press Taylor & Francis Group., 2007; pp. 255-63.
134. Patel VB, Misra AN, Marfatia YS. Preparation and comparative clinical evaluation of liposomal gel of benzoyl peroxide for acne. Drug Dev Ind Pharm., 2001; 27(8): 863-9.
135. Gollnick H, Cunliffe W, Berson D, et al. Management of acne: a report from a global alliance to improve outcomes in acne. J Am Acad Dermatol., 2003; 49(1)(Suppl.): S1-37.
136. Burkhart CN, Specht K, Neckers D. Synergistic activity of benzoyl peroxide and erythromycin. Skin Pharmacol Appl Skin Physiol., 2000; 13(5): 292-6.
137. Gruber DM, Sator MO, Joura EA, Kokoschka EM, Heinze G, Huber JC. Topical cyproterone acetate treatment in women with acne: a placebo-controlled trial. Arch Dermatol., 1998; 134(4): 459-63.
138. Eremia S. Chemical Peels and Microdermabrasion. In: Office-Based Cosmetic Procedures and Techniques. 1st ed. UK: Cambridge University Press., 2010; 338-42.
139. Small R, Hoang D, Linder J. Chemical Peels. In: A Practical Guide to Chemical Peels, Microdermabrasion & Topical Products. USA: Lippincott Williams & Wilkins., 2013; 43-5.
140. Namdeo A, Jain NK. Niosomes as drug carriers. Indian J Pharm Sci., 1996; 58: 41-6.
141. Uchegbu IF, Vyas SP. Non-ionic surfactant based vesicles (niosomes) in drug delivery. Int J Pharm., 1998; 172: 33-70.
142. Manconi M, Sinico C, Valenti D, Loy G, Fadda AM, Fadda AM. Niosomes as carriers for tretinoin. I. Preparation and properties. Int J Pharm., 2002; 234(1-2): 237-48.
143. Manconi M, Valenti D, Sinico C, Lai F, Loy G, Fadda AM. Niosomes as carriers for tretinoin. II. Influence of vesicular incorporation on tretinoin photostability. Int J Pharm., 2003; 260(2): 261-72.
144. Gopinath D, Ravi D, Rao BR, Apte SS, Renuka D, Rambhau D. Ascorbyl palmitate vesicles (Aspasomes): formation, characterization and applications. Int J Pharm., 2004; 271(1-2): 95-113.
145. Embil K, Nacht S. Microsponge delivery systems (MDS) a topical delivery system with reduced irritancy incorporating multiple mechanisms for

triggering the release of active agents. J Microencapsul., 1996; 13: 575-88.
146. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Tribulus Terrestris Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Controlling Diabetes. World Journal of Pharmaceutical Research., 2024; 13(7): 1264-1282.
147. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Pandanus Odoratissimus Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Hepatoprotective. European Journal of Pharmaceutical and Medical Research., 2024; 11(4): 06-13.
148. Noman MA, Alburyhi MM, Saif AA. Knowledge and Perception about Pharmacovigilance Among 4Th and 5Th Levels Pharmacy Students in Some Public and Private Universities, Sana'a Yemen. World Journal of Pharmaceutical and Medical Research., 2023; 9(11): 14-19.
149. Alburyhi MM, Noman MA, Saif AA, Salim YA, Abdullah JH. Formulation and Evaluation of Domperidone Orodispersible Tablets. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(3): 49-68.
150. Alburyhi MM, Saif AA, Noman MA, Hamidaddin MA. Formulation and Evaluation of Clopidogrel Orodispersible Tablets. World Journal of Pharmaceutical Research., 2024; 13(6): 42-64.
151. Alburyhi MM, Saif AA, Noman MA, Al Khawlani MA. Bisoprolol-Excipient Compatibility Studies for Advanced Drug Delivery Systems Development. World Journal of Pharmaceutical and Medical Research., 2024; 10(10): 304-324.
152. Bary AA, El-Gazayerly ON, Alburyhi MM. A Pharmaceutical Study on Methocarbamol. MSc Thesis, Faculty of Pharmacy, Cairo University., 2006.
153. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Plicosepalus Acacia Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Hepatoprotective. World Journal of Pharmaceutical Research., 2025; 14(8): 1309-1334.
154. Saif AA, Alburyhi MM, Noman MA. Formulation and Evaluation of Ketoprofen Fast Dissolving Tablets. International Journal of Sciences., 2018; 7(09): 27- 39.
155. Noman MA, Alburyhi MM, El-Shaibany A, Alwesabi NA. Preformulation and Characterization Studies of Pandanus Odoratissimus L Extract Active Ingredient in Treatment of Nocturnal Enuresis. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(2): 1603-1620.
156. Alburyhi MM, El-Shaibany A. Formulation and Evaluation of Oral Pharmaceutical Solution of Pandanus Odoratissimus L Extract Herbal Product in Treatment of Nocturnal Enuresis. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(1): 1840-1851.
157. Alburyhi MM, El-Shaibany A. Formulation and Evaluation of Antibacterial Orodispersible Tablets of Artemisia Arborescence Extract Herbal Product. European Journal of Pharmaceutical and Medical Research., 2024; 11(2): 409-417.
158. Saif AA, Alburyhi MM, Noman MA. Evaluation of Vitamin and Mineral Tablets and Capsules in Yemen Market. Journal of Chemical Pharma Research., 2013; 5(9): 15-26.
159. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Acalypha Fruticosa Extract Tablets Delivery System as an Advanced Phytotherapy Approach for Controlling Diabetes. World Journal of Pharmaceutical Research., 2024; 13(8): 1073-1091.
160. Noman MA, Alburyhi MM, El-Shaibany A, Alwesabi NA. Formulation and Evaluation of Pandanus Odoratissimus L Extract for Treatment of Nocturnal Enuresis as Orodispersible Tablets Delivery System. World Journal of Pharmaceutical Research., 2024; 13(5): 56 -71.
161. Othman AM, Alburyhi MM, Al-Hadad GH. Captopril-Excipient Preformulation Studies for Mouth Dissolving Tablets Development. World Journal of Pharmaceutical Research, 2025; 14(10): 1398-1420.
162. Alburyhi MM, Mohamed YAS, Saif AA, Noman MA, Abdullah JH, Yahya TAA. Recent Innovations of Novel Drug Delivery Systems for Formulation, Development and Evaluation of Amlodipine and Furosemide Orodispersible Tablets. World Journal of Pharmaceutical and Medical Research, 2025; 11(5): 358-378.
163. Alburyhi MM, Yahya TAA, Saif AA, Noman MA. Formulation and Evaluation of Lornoxicam Microsponge-Based Gel as A Transdermal Drug Delivery Systems. World Journal of Pharmaceutical and Life Sciences, 2025; 11(5): 200-217.
164. Alkhawlani MA, Al-Ghani AM, Alburyhi MM. Study the Potential Drug- Drug Interaction Through Prescriptions Analysis in Some Sana'a City Hospitals, Yemen. European Journal of Pharmaceutical and Medical Research., 2024; 11(5): 440-448.
165. Al Ghoury AA, Al-Ghorafi MA, Alburyhi MM, Noman MA. Antimicrobial Susceptibility Patterns of Staphylococcus Aureus to Different Antimicrobial Agents Isolated as Clinical Samples at Certain General Hospitals in Sana'a City, Yemen. World Journal of Pharmaceutical Research., 2024; 13(16): 35-47.
166. Noman MA, Alburyhi MM, Saif AA, Yahya TAA. Assessment of Knowledge, Attitude, and Practice of Pharmacovigilance Among Pharmacists and Health care Professionals in Four Government Hospitals at Sana'a City, Yemen. European Journal of Biomedical and Pharmaceutical Sciences., 2025; 12(5): 250-267.

167. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Ginger Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Controlling Diabetes. World Journal of Pharmaceutical and Medical Research., 2025; 11(6): 400-415.
168. Alburyhi MM, Saif AA, Noman MA, Saif RM. The Importance of Stability Testing in Pharmaceutical Development of Ceftriaxone Implant Biodegradable Tablets. Matrix Science Pharma (MSP)., 2025; 9(2): 58-63.
169. Saif AA, Alburyhi MM, Noman MA, Abudunia A. Amoxicillin-Excipient Compatibility Studies for Advanced Drug delivery Systems Development. European Journal of Pharmaceutical and Medical Research., 2025; 12(6): 530-562.
170. Alburyhi MM, Hamidaddin MA, Noman MA, Saif AA. Recent Innovations of Novel Drug Delivery Systems for Formulation, Development and Evaluation of Metronidazole Medicated Chewing Gum Tablets. European Journal of Biomedical and Pharmaceutical Sciences, 2025; 12(6): 353-370.
171. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Plicosepalus Acacia Extract Capsules as Naturaceutical Novel Drug Delivery Systems for Controlling Diabetes. World Journal of Pharmaceutical and Life Sciences., 2025; 11(6): 323-337.
172. Alburyhi MM, El-Shaibany A. Recent Innovations of Novel Drug Delivery Systems for Formulation, Development and Evaluation of Pandanus Odoratissimus Extract Capsules as Naturaceutical for Breast Cancer. World Journal of Pharmaceutical Research., 2024; 13(8): 1092-1112.
173. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Tribulus Terrestris Extract Capsules as Naturaceutical Novel Drug Delivery Systems for Kidney Stones. World Journal of Pharmacy and Pharmaceutical Sciences., 2024; 13(5): 1425-1443.
174. Alburyhi MM, El-Shaibany A. Formulation, Development and Evaluation of Capsicum Extract Capsules Delivery System as an Advanced Phytotherapy Approach for Tonic and Natural Stimulant. European Journal of Pharmaceutical and Medical Research., 2025; 11(6): 323-337.
175. Alburyhi MM, Saif AA, Noman MA, Abudunia A, Yassin SH, Abdullah JH. Formulation, Development and Evaluation of Amoxicillin Fast Dissolving Tablets. World Journal of Pharmaceutical and Life Sciences., 2025; 11(7): 183-197.
176. Noman MA, Alburyhi MM, Yahya TAA, Saif AA. Evaluation and Drug Stability Studies of Different Brands of Clopidogrel Tablets Available in Sanaa City Market, Yemen. European Journal of Biomedical and Pharmaceutical Sciences, 2025; 12(7): 181-191.
177. Alburyhi MM, Raweh SM, AlGhoury ABA, Alkhawlani MA, Noman MA, Saif AA. Recent Innovations of Novel Drug Delivery Systems for Formulation, Development and Evaluation of Grewia Tenax Extract Naturaceutical Ointment for Antimicrobial Activity. World Journal of Pharmaceutical and Medical Research., 2025; 11(7): 413-426.
178. Gasco MR, Gallarate M, Pattarino F. In vitro permeation of azelaic acid from microemulsions. Int J Pharm., 1991; 69: 193-6.
179. Hoffman AS. Hydrogels for biomedical applications. Adv Drug Deliv Rev., 2002; 54(1): 3-12.
180. Lee TW, Kim JC, Hwang SJ. Hydrogel patches containing triclosan for acne treatment. Eur J Pharm Biopharm., 2003; 56(3): 407-12.
181. Sinha P, Srivastava S, Mishra N, Yadav NP. New perspectives on antiacne plant drugs: contribution to modern therapeutics. BioMed Res Int., 2014; 2014: 301304.
182. Mortazavi SA, Pishrochi S, Jafari Azar Z. Formulation and in vitro evaluation of tretinoin microemulsion as a potential carrier for dermal drug delivery. Iran J Pharm Res., 2013; 12(4): 599-609.