ULTRA VIOLET VISIBLE SPECTROPHOTOMETRIC METHOD DEVELOPMENT AND VALIDATION OF ORAL ANTI PLATELET TICAGRELOR DRUG IN PHARMACEUTICAL FORMULATION

Dissertation Submitted to

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY,

CHENNAI – 600 032.

In partial fulfilment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

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SUMMARY AND CONCLUSION

To develop and validate a precise, accurate, simple, cost-effective UV Spectrophotometric method for the determination of Ticagrelor marketed tablet dosage form. UV-Spectrophotometric method was performed by using UV/Vis double beam spectrophotometer with spectral band width of 1 nm and 1.0 cm matched quartz cells and glass cells were used for UV regions respectively. Ticagrelor shows the highest λmax at 255 nm. The linear calibration range was found to be 7.5 µg/mL to 17.5 µg/mL in the UV region. The correlation coefficient (R 2) is 0.9993, and the regression equation is y=0.034x+0.00335 in the UV region. The % recovery was found to be in the range lies between 99.26-100.25 %. The percentage assay of Ticagrelor obtained was 106.09. The method was validated in terms of Linearity, stability and Assay as per ICH Q2 (R1) guidelines. The result of this method were superior over the other reported methods

DESIGN AND EVALUATION OF SUSTAINED RELEASE TABLET OF HYDROPHILIC MATRIX SYSTEM DRUG USED ACECLOFENAC

Dissertation submitted to

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8. CONCLUSION

The study was undertaken with the aim to Formulation and evaluation of Aceclofenac sustained release tablet using HPMC grade of polymer as retarding agent. Preformulation studies were done initially and result directed for further course of formulation. Based on the pre formulation studies different batches of Aceclofenac are prepared using selected excipients and the granules were evaluated for tests of Loss on drying,angle of repose,bulk density,tapped density,compressibility index,Hauser ratio,sieve analysis before being punched as tablets which were found within the limits. Tablets were tested for weight variation, hardness, thickness, friability and in vitro drug release as per pharmacopoeial procedure, which are within the limits.

Kinetic studies were observed as zero order and release mechanism of drug through polymeric membrane was found through diffusion and rate of diffusion is controlled by swelling of polymer.

Infrared spectra of the tablet revels, that there is no significant interaction between drug and polymer.

The dissolution studies formulations of F2, F5, F8 were good release and F6 formulation was excellent.

From the above results and discussion, it is concluded that the formulation of sustained release tablet of Aceclofenac containing HPMC K100 , mannitol and lactose which are taken as ideal or optimized formulation of sustained release tablet for 24 hours release as it fulfills all the requirement of sustained release tablet and study encourages further clinical trials and long term stability study on this formulation.

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ASSESSMENT OF THE ANTI-DIABETIC ACTIVICTY OF *SCHEFFLERA STELLATA* LEAVES ETHANOLIC EXTRACT ON STREPTOZOTOCIN-INDUCED DIABETES IN WISTAR RATS

Dissertation submitted to

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6. Result & Discussion

6.1 Preliminary Phytochemical analysis of Ethanolic extract of *Schefflera stellata (Geartn.)*(EESS)

The result of preliminary phytochemical analysis of Ethanolic extract of *Schefflera stellata (Geartn.)* (EESS) showed presence of various phytochemical constituents such as, flavonoids, alkaloids, tannins, proteins, steroids and phenol with absence of saponins and anthroquinones.

The results were shown in **(Table-1)**

Table- 1. Phytochemical screening of EESS

The Phytochemical studies of the sample TEST	Sample
TANNINS	+
SAPONINS	-
FLAVONOIDS	+
ALKALOIDS	+
PROTEINS	+
STEROIDS	+
ANTHROQUINONES	-
PHENOL	+

(+) Present ; (-) Absent

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8. CONCLUSION

The anti-diabetic activity of Whole pant of *Schefflera stellata* Willd is evidenced byblood glucose level, estimation of lipid profile activity of *Schefflera stellata* and the evidentreduction in SGOT, SGPT in liver and creatinine in serum also proves that the *Schefflera stellata* reduced the Pancreas, liver damage which is common in diabetes.

Thus, it may be concluded that *Schefflera stellata* produced significant antidiabetic activity in streptozotocin induced diabetic rats. The efficacy of the *Schefflera stellata* was comparable to that of Glibenclamide. Further work was necessary to elucidate the mechanism of action involved in the anti-diabetic activity of *Schefflera stellata* with special references to phytochemicals.

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FORMULATION DEVELOPMENT AND STABILITY STUDY OF SUNSCREEN GEL WITH HERBAL CONSTITUENTS

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CONCLUSION

In culmination, our study represents a significant advancement in the field of pharmacognosy, particularly in the formulation of herbal-based sunscreen products utilizing state-of-the-art Nano emulsion technology. Through meticulous experimentation and thorough analysis, we have successfully developed a sunscreen gel that harnesses the antioxidant potential of herbal ingredients, specifically thymol and cinnamon oil, encapsulated within a nanoemulgel matrix.

Our research journey commenced with the standardization of thymol and cinnamon oil, essential steps to ensure the consistency and potency of the active ingredients in the final formulation. The subsequent evaluation of antioxidant activity revealed thymol's remarkable efficacy in scavenging free radicals, surpassing that of cinnamon oil. Furthermore, both extracts exhibited promising peroxide scavenging capabilities, with thymol emerging as the more potent antioxidant.

The demonstrated reducing power of thymol and cinnamon oil extracts underscores their potential as effective antioxidants, holding significant implications for skin health and protection against oxidative stress-induced damage.

The successful formulation of the nanoemulsion, characterized by its high zeta potential and nano-sized particles, represents a pivotal achievement in ensuring stability and enhanced skin penetration of the active herbal components. These attributes are paramount in guaranteeing the efficacy and longevity of the sunscreen gel upon application.

Moreover, the comprehensive evaluation of the nanoemulgel encompassed an array of physical properties including color, fragrance, viscosity, spreadability, and pH, all of which fell within acceptable ranges, further affirming the formulation's suitability for topical use.

As we conclude this thesis, it is evident that our research has not only contributed to the development of a novel herbal sunscreen formulation but has also shed light on the potential of pharmacognosy in harnessing nature's bounty for skincare applications. Moving forward, further studies may delve into optimizing the formulation for specific skin types and exploring additional herbal essential oils with synergistic antioxidant properties, paving the way for safer and more efficacious sunscreen products rooted in natural ingredients. Thus, our journey in pharmacognosy continues, fueled by a commitment to innovation and the pursuit of harnessing nature's therapeutic potential for human well-being.

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ANALYTICAL METHOD DEVELOPMENT AND VALIDATION FOR SIMULTANEOUS ESTIMATION OF BEMPEDOIC ACID AND EZETIMIBE IN PURE AND ITS PHARMACEUTICAL DOSAGE FORM BY RP-HPLC

A Dissertation Submitted to

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8. CONCLUSION

A RP - HPLC method for Bempedoic acid and Ezetimibe was developed and validated in tablet dosage form as per ICH guidelines. The results are found to be complying with the acceptance criteria for each of the parameter.

WATERS HPLC (Empower software with UV/Visible detector) with WATERS (C_{18}, 250 x 4.6 mm, 5µm) Packed Column, Injection volume of 10 µL is injected and eluted with the Mobile phase [Buffer (dipotassium hydrogen orthophosphate (Dihydrate)) and Methanol, in the ratio of 60:40] Which was pumped at a flow rate of 1.0 mL at 242 nm. The peak of Bempedoic acid and Ezetimibe was found well separated at 3.090 min, 4.268 min. The developed method was validated for various parameters as per ICH guidelines like System suitability, Accuracy (recovery), Precision (repeatability), Specificity (interference), Robustness, Ruggedness, Limit of Detection, Limit of Quantitation, Linearity and Range.

The analytical method validation of Bempedoic acid and Ezetimibe by RP-HPLC method was found to be satisfactory and could be used for the routine pharmaceutical analysis of Bempedoic acid and Ezetimibe.

FUTURE SCOPE

In the above-mentioned RP-HPLC method for estimation of Bempedoic acid and Ezetimibe in combined tablet dosage form and the run time was found to be within 7 minutes, retention time of Bempedoic acid and Ezetimibe was 3.090 and 4.268 minutes. Hence it is concluded that the assay method is found to be valid in terms of reliability, accuracy, precision and specificity. Hence it is suitable for routine analysis as well as for stability analysis.

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KNOWLEDGE AND ATTITUDE OF NURSES TOWARDS DIABETIC FOOT ULCER CARE IN MULTISPECIALITY HOSPITALS IN ERODE.

Dissertation submitted to

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In partial fulfillment for the requirements for the award of the degree of

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IN

PHARMACY PRACTICE

Submitted by

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9.CONCLUSION

A cross-sectional study was conducted to assess the knowledge and attitude of nurses towards diabetic foot care in multispecialty hospitals In Erode district. A total of 268 nurses participated in the study. Most of the participants were females accounting for 76.5% .The study shows that 210 (78.35%) of the participants scored between 16-20. In-service education had significant impact on knowledge score. Therefore, a large number of staff nurses may have obtained good score regarding diabetic foot ulcers. Though majority of the respondents have good knowledge our study found that 72.8 % have unfavorable attitude.Our study conclude that, nurses having sufficient knowledge about the necessity of diabetic foot ulcer. Insufficient information and deficiencies in practice should be determined through knowledge level studies. The knowledge deficit staff nurses can encourage and support through continuing education programs and in-service training programs. Therefore, it is necessary to support and knowledge level of staff nurses on diabetic foot ulcer support with guidelines and practical training on diabetic foot ulcer to knowledge deficit nursing staff about foot ulcer.

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ANTIDEPRESSANT EFFECT OF HYDROETHANOLIC EXTRACT OF *Croton hirtus* (HECH) IN MICE

The Tamil Nadu Dr. M.G.R. Medical University, Guindy, Chennai - 600 032

In a partial fulfillment of the requirements for the award of degree of

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(Department of Pharmacology)

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7. RESULTS AND DISCUSSION

7.1 PHYTOCHEMICAL ANALYSIS

The phytochemical analysis of Hydroethanolic extract of *Croton hirtus* shows the positive results for Alkaloids , Carbohydrates , Steroids , Glycosides and Terpenoids .

S. NO	PHYTOCHEMICAL CONSTITUENTS	RESULT
1	Alkaloids	+
2	Carbohydrates	+
3	Reducing sugar	-
4	Flavanoids	+
5	Saponins	-
6	Tannins	-
7	Steroids	+
8	Proteins	-
9	Glycosides	+
10	Phenols	-
11	Amino acids	-
12	Terpenoids	+

8. SUMMARY AND CONCLUSION

SUMMARY

1. Phytochemical evaluation of Croton hirtus

The phytochemical studies were carried out for the hydroethanolic extract of Croton hirtus and the leaf shows positive results for Alkaloids , Carbohydrates , Steroids , Glycosides and Terpenoids.

2. In-Vivo Anti-depressant activity of Croton hirtus

The Behavioural assessments screening was carrired out and in tail suspension test the animal administered with HECH of 200 and 400 mg/kg shows reduction in frequency and duration of immobility when compared with the standard.

Forced swim test shows the immobility of animal with test drug HECH 200 and 400 mg/kg and latency of immobility is increased when compared to standard drug Imipramine 15 mg/kg.

3. In-vitro Anti-depressant activity of Croton hirtus

Estimation of reduced glutathione, estimation of catalase and estimation of total nitrate promotes the significant anti oxidant activity in animals treated with test drug when compared to the standard.

4. Biochemical analysis

Serum cortisone level was increased in the animals treated with test drug HECH 200 and 400 mg/kg and more significant than standard.

5. Histopathology of brain

Histopathology studies shows that the increased proliferation of cells and widening of molecular layers

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COMPARISON OF DRUGS AND COSMETICS ACT 1940 AND WITH DRAFT OF NEW DRUGS, MEDICAL DEVICES AND COSMETIC BILL - 2022

Dissertation submitted to

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RESULT AND DISCUSSION

The main thing to bring the draft bill is to ensure the second schedule of the pre-colonial era Drug and Cosmetic act recognizes only legally binding standards for drugs, so there are no standards for medical devices and no way to prosecute a manufacturer who manufactures medical devices. The new draft regulation aims to come up with a certain provision that aims in regulating medical devices, cosmetic, clinical trials etc.

- The Bill has introduced a new definition of medical devices and the setting up of a regulatory body.
- It has specifically broadened the regulations on the import of medical devices.
- Another important aspect this Bill has inculcated is the regulation of AYUSH drugs.
- The Bill also introduces provisions for clinical trials for drug testing.
- A highlight of this Bill is the regulation of online pharmacies since there are currently no specific and explicit rules relating to the sale for pharmaceutical products online.
- The penalties for certain offences have also been maximised to create a deterrent effect.

Currently the comparison of this study is to know about the clinical trial which may include in the new draft bill. The draft bill includes all the related guidelines that will be known for the new draft bill. Drugs and Clinical Trial Rules, 2019 are the only regulation in this regard. Here a separate Chapter has been included in the draft Bill for clinical trials and clinical trial investigation. The draft Bill prohibits all the clinical trials or clinical investigations of drugs and medical devices without permission from the central licensing authority.

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NAME OF THE HOSPITAL	DEPARTMENT	DATE		TOTAL DURATION
		FROM	TO	
MMCH, Erode	Pediatric	12/12/2022	11/02/2023	2 Months
	Orthopedics	12/02/2023	11/04/2023	2 Months
	Surgery	12/04/2023	11/06/2023	2 Months
	General Medicine	12/06/2023	11/12/2023	6 Months

During the above period, hischaracter and conduct was **Good**.

His work during the above period was **Good.**

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A PROSPECTIVE OBSERVATIONAL COHORT STUDY FOCUSED ON ANALYSING THE DISRUPTIVE EFFECTS OF PAIN ON CANCER PATIENTS AND THE CLINICAL EFFECTIVENESS OF MEDICATIONS AT ERODE.

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DECLARATION

We hereby declare that this thesis entitled **"A PROSPECTIVE OBSERVATIONAL COHORT STUDY FOCUSED ON ANALYZING THE DISRUPTIVE EFFECTS OF PAIN ON CANCER PATIENTS AND THE CLINICAL EFFECTIVENESS OF MEDICATION AT ERODE."** is a genuine research work carried out by us ,under the guidance of **Dr. N.SENTHIL KUMAR,** M.PHARM, Ph.D., Principal and the co-guidance of **Dr. C J.GLADY GLORIA GRANT,** Pharm D, Assistant Professor, JKKMMRF's ANNAI JKK SAMPOORANI AMMAL COLLEGE OF PHARMACY, Komarapalayam. For the partial fulfilment of requirement for the degree of Doctor of Pharmacy.

We further declare that this work has not been submitted earlier in part or full for the award of any degree or diploma to this or any other university. The information furnished in this thesis is genuine to the best of our knowledge and belief.

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7. CONCLUSION

- Our research revealed a higher prevalence of chronic pain compared to acute pain among patients. Chronic pain significantly impacted various aspects of their daily lives, including sleep patterns, physical activity, and emotional well-being, leading to symptoms of irritability, anxiety, and depression.
- Furthermore, our findings indicated that patients who predominantly relied on over-the-counter NSAIDs for short-term pain relief, without consulting a medical professional, experienced a higher incidence of adverse side effects.
- The pain following chemotherapy persisted. While pain medications provided relief for acute pain, they were not effective in alleviating chronic pain for these patients.
- We educated the patients on safe and effective use of opioids, risk of addiction, overdose and abuse. We advised the patients not to double the dose in case they have skipped the dose. Also advised them to take their medication on correct time the correct dose as much as possible.

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JOURNAL CLUB CONDUCTED FOR ADVANCED LEARNERS

Academic Year: 2023 - 2024

Class: IV Pharm D

Section: —

Subject: Clinical Toxicology

Topic: COVID - 19 and the brain

Date: 05 / 10 / 23

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STUDENT SEMINAR TOPICS ALLOTED FOR ADVANCED LEARNERS

Academic Year: 2023-2024

Class: IV Pharm D

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Subject: Clinical Toxicology

S.no	Student name & Register no	Date	Topic
1.	Alshada Sharf	7/9/23	Antidote
2.	Jayapriya N	8/9/23	Venomous Snake Bite.
3.	Jeevitha M	21/9/23	Food poisoning
4.	Prabhat kumar G	22/9/23	Substance Abuse
5.	Pradesh C	29/9/23	Heavy metal poisoning
6.			
7.			
8.			
9.			
10.			

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ADDITIONAL CLASSES FOR SLOW LEARNERS

Academic Year: 2023 - 2024

Class: IV Pharm D

Section: —

Subject: Clinical Toxicology

S.No	Student Name & Register No							
1.	Archana B	✓	✓	✓	✓	✓	✓	✓
2.	Bharath M	✓	✓	✓	✓	✓	✓	✓
3.	Godwin S	✓	✓	✓	✓	✓	✓	✓
4.	Naveena S	✓	✓	✓	✓	✓	✓	✓
5.	Ramya GK	✓	✓	✓	✓	✓	✓	✓
6.	Soundhar K	✓	✓	✓	✓	✓	✓	✓
7.	Tamilselvan S	✓	✓	✓	✓	✓	✓	✓
8.	Vimalraj G	✓	✓	✓	✓	✓	✓	✓
9.								
10.								
11.								
12.								
13.								
14.								
15.								
TOPIC		Nursing care	Gastric lavage	Haemo dialysis	Pesticide poisoning	Mercury Poisoning	Clinical effects of venom	Mycotoxins
DATE		5/8/23	11/8/23	18/8/23	8/9/23	15/9/23	29/9/23	5/10/23
SIGNATURE								

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ADDITIONAL TEST FOR SLOW LEARNERS

Academic Year: 2023-2024

Class: IV Pharm D

Section: —

Subject: Clinical Toxicology

S.No	Student Name & Register No	Marks (15)	Marks (15)	Marks (15)	Marks (15)	Marks (15)	Marks (15)	Marks (15)
1.	Archana B	10	13	14	10	12	13	11
2.	Bharath M	12	12	13	12	11	12	13
3.	Godwin S	11	10	12	10	10	14	10
4.	Naveena S	12	11	10	8	11	10	12
5.	Ramya G K	10	12	12	11	13	9	11
6.	Soundhar K	9	11	11	12	12	11	10
7.	Tamilselvan S	11	8	10	13	10	13	9
8.	Vimalraj G	10	10	12	12	11	12	12
9.								
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14.								
15.								
TOPIC		Nursing care	Gastric lavage	Haemo dialysis	Pesticide poisoning	Mercury Poisoning	Effects of venom	Mycotoxins
DATE		10/8/23	17/8/23	19/8/23	14/9/23	16/9/23	30/9/23	6/10/23
SIGNATURE								

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