INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: https://www.ijpsjournal.com

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Research Paper

Formulation And Evaluation of Herbal Gel from Drimia Indica for Herpes Zoster – Anti-Oxidant & Anti-Inflammatory Gel

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ARTICLE INFO

Published: 17 May 2025
Keywords:
Anti –oxidant, Anti-inflammatory, Herpes zoster, Drimia Indica etc.
DOI:
10.5281/zenodo.15452644

ABSTRACT

Ayurveda, the ancient system of medicine originating in India, offers a holistic approach to health and wellness that integrates the body, mind, and spirit. Rooted in centuries of traditional knowledge, Ayurvedic medicine emphasizes the use of natural herbs, minerals, and lifestyle practices to prevent and treat diseases. Herbal medicine are natural medicine many people believes that herbal medication is safe medication This research is helpful to formulate herbal gel for treating Herpes zoster by using Drimia Indica. Drimia Indica (formerly known as Urginea maritima) is a plant has been traditionally used as folk medicine for various ailments, including herpes zoster. However, there is no any scientific evidence to support in use of Drimia indica gel for herpes zoster treatment.

INTRODUCTION

Herpes zoster, commonly known as shingles, is a viral infection caused by the reactivation of the varicella-zoster virus, leading to painful vesicular rashes, inflammation, and potential postherpetic neuralgia. Oxidative stress plays a significant role in the progression of this condition, making antioxidant-based therapies a promising adjunct for symptom management. (1,2) Drimia indica (Roxb.) Jessop, also known as Indian Squill or JangaliPiyaz, is a bulbous plant extensively used in traditional Indian medicine.

This study aims to develop and evaluate a topical antioxidant gel incorporating Drimia indica extract for the management of herpes zoster. The gel was formulated using a suitable polymer base and evaluated for its physicochemical properties, spreadability, stability, and in vitro antioxidant capacity using DPPH assays (3,4,5). Preliminary results show that the Drimia indica gel possesses significant antioxidant potential and favorable topical characteristics. The integration of traditional Ayurvedic wisdom with modern phytopharmaceutical evaluation suggests that Drimia indica gel may offer supportive benefits in

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

reducing oxidative stress, inflammation, and skin discomfort associated with herpes zoster. Further in vivo and clinical studies are warranted to establish its safety and efficacy.(6)

Objectives

The objectives of reserach work under taken are as

- To perform polyherbal gel characterization.
- To formulate and evaluate the polyherbal gel containing anti-oxidant ,anti – inflammatory activity using gelling agentsand other ingerdients .
- To formulate and evaluate the gel to treat skin disease like herpes zoster.

PLANT PROFILE

Drimia indica
Scientific Name – Drimia Indica (Roxb.) Jessop
Common name – Ran canda
Kingdom - Plante
Family - Asparagaceae
Sub family - scilloideae
Genus – Drimia
Species - Drimia indica



Fig.no 1

Biological source -
It is obtained from fresh leaves of Drimia indica
Phytoconstituents: Bufadienolide

MATERIAL S AND METHODS

Given formulation is developing with herbal extract as well the help of some synthetic ingredients which has necessarily use in the formulation of gel preparation.

Collection and preparation of extract

Leaves are collected from plant Drimia indica belonging to Asparagaceae family. It is also known as Indian squill (Ran canda). It is leafy plant , leaves are upto 30 – 40 cm . The leaves are collected and washed then dried for 3 days in shedy region. Then make fine powder of these dried leaves .kept herb for extraction by maceration process for 7 days in enthanol in ration 1: 3 . After 7 days filter the extract .(7)

Ingredients other than active herbal extract:

These are the ingredients which has the different properties to formulating gel other than active extract. Example; thickening agent, gelling agent etc.

Formulation table

Sr.No.	Ingredients Name	Quantity (gm)	Role
1	Carbapol 940	1	Gelling agent
2	Propyl paraben	1	Preservative
3	EDTA	0.2	Chelating agent
4	Triethanolamine	0.10	Neutralizer
5	CMC	1	Thickening agent
6	Polythene glycol	2.50	Gelling base
7	Distilled water	q.s	Diluent
8	Rose water	1ml	Flavouring agent

METHODS OF PREPARATION OF GEL :

1. 1g of Carbapol 940 was dispersed in 50 ml of distilled water kept the beaker a side to swell the Carbapol 940 to form gel.
2. Take 5 ml water and dissolved the proper quantity of propyl paraben by giving heating water bath.
3. After cooling of solution add glycol 400 and CMC in it .
4. Further required quantity of extract was mixed to the above mixture and add this solution into the Carbapol 940 gel with continuous stirring.
5. Triethanolamine was add drop wise to the Formulation for adjustment of required skin pH and to obtain the gel at required consistency.(8,9)



Fig.no 2



Fig.no 3

EVALUATION PARAMETERS OF GEL FORMULATION

A) Physical properties –

The gel were examined for their physical properties by visual inspection of color, odor, appearance, homogenesity etc.

1. Color –The color of the gel was observed by visual inspection i.e. light yellow.
2. Odour –odour of the gel found to be characteristics.
3. Consistency- The consistency was checked by applying on the skin and it was jelly type.
4. Greasiness – the greasiness was assist by the application on the skin and slide.

Sr.No.	Properties	Observation
1	Color	Light yellow
2	Odour	Characteristics
3	Consistency	Jelly
4	Texture	Smooth

B) Stability study –

Stability study was taken by record the gel activity for month of time period and observe its changes .

Sr. No	Duration Parameters	Appearance	Color	Odour
1	7 days at 25°c	Semisolid	Yellow	Aromatic
2	15 days at 25°c	Semisolid	Yellow	Aromatic
3	30 days at 25°c	Semisolid	Yellow	Aromatic

As per results are shown in table no 3 , formulation showed no significant changes in appearance, odour and color after 30 days. The gel has good stability.

C) Determination of pH –

Take 2 gm of gel dissolve into 10 ml of distilled water and used to check digital pH meter.

pH – **6.40**

D) Determination of viscosity –

Viscosity of the formulated gel was determined using viscometer. Speed 60 rpm at 25°c and reading to be noted.

Viscosity – **500p**

E) **Clarity checking** – The prepared gel was evaluated in glass container and observed under glass.

F) **Washability** – formulation was applied on hand and observe under running water it is easily washable.

G) **Irritancy test** – The prepared gel was applied on skin and observed any lesions, irritation etc.(10,11)

H) DPPH assay for evaluating the antioxidant activity of gel –

1. Antioxidant activity of test compounds was estimated for their free radical scavenging Activity by using DPPH (1, 1-Diphenyl-2, Picryl-Hydrazyl) free radicals.
2. 1ml of different concentrations (200, 400, 600, 800, 1000µg/ml) were taken in a test tubes. 1.5ml of 0.1% methanolic DPPH was added over the samples and incubated for 30 minutes In dark condition.
3. The samples were then observed for discoloration; from purple to yellow and read the Absorbance on colorimeter at 510 nm
4. Radical scavenging activity was calculated by the following equation:

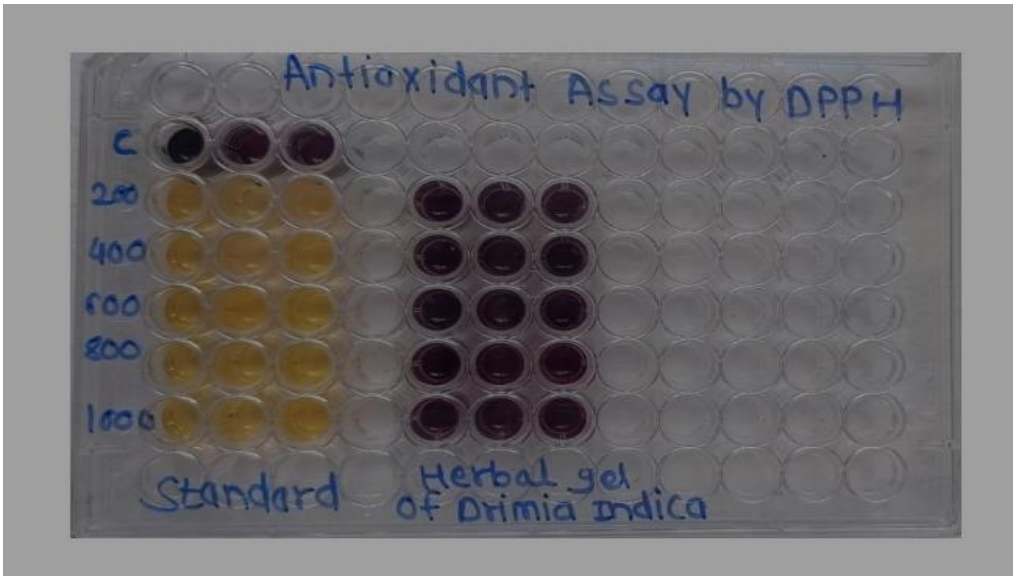
DPPH radical scavenging activity (%) = [(Absorbance of control – Absorbance of test Sample) / (Absorbance of control)] x 100

RESULTS: Observation Table :

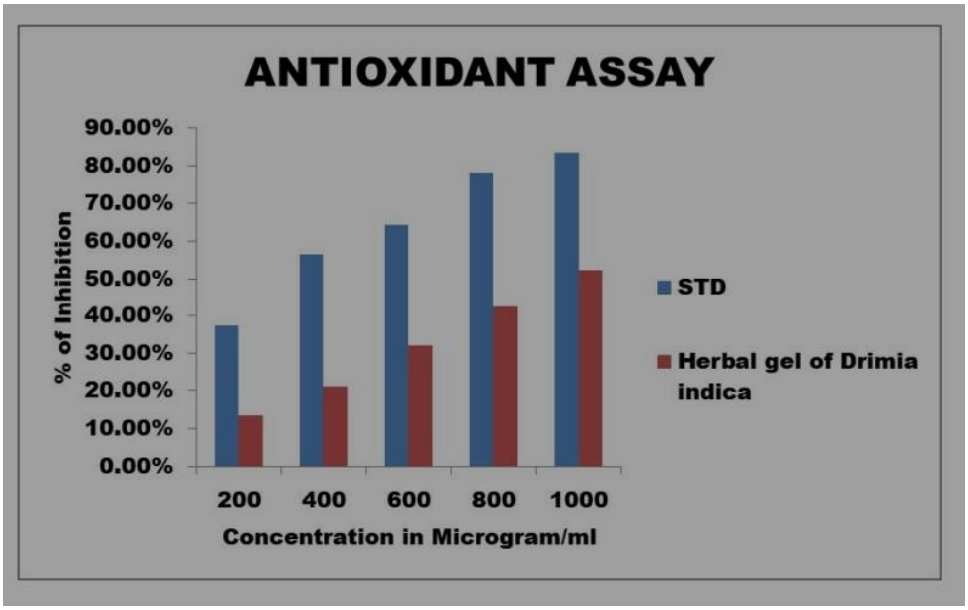
NE*- Not Evaluable

SR. NO	Sample Code	Concentration (µg/ml)	Absorbance at 510nm				% Inhibition	IC50 (µg/ml)
			Test 1	Test 2	Test 3	Mean		
1	Control	-	1.93	1.93	1.93	**1.93**	-	
2	Standard	**200**	1.22	1.21	1.19	**1.21**	**37.30%**	
	(Ascorbic Acid)	**400**	0.83	0.85	0.85	**0.84**	**56.47%**	
		600	0.69	0.70	0.67	**0.69**	**64.24%**	
		800	0.41	0.44	0.42	**0.42**	**78.23%**	
		1000	0.35	0.32	0.31	**0.32**	**83.41%**	
3	Herbal gel of Drimia indica	**200**	1.68	1.67	1.67	**1.67**	**13.47%**	
		400	1.52	1.52	1.52	**1.52**	**21.24%**	
		600	1.32	1.30	1.31	**1.31**	**32.12%**	
		800	1.13	1.10	1.11	**1.11**	**42.48%**	
		1000	0.92	0.90	0.93	**0.92**	**52.33%**	

IMAGES OF ACTIVITY:



Graphical data –



Conclusion of the study

The antioxidant profile of compounds Herbal gel of Drimia indica was evaluated by Measuring the percent of inhibition against DPPH reagent via test tube method. The Compound Herbal gel of Drimia indica exhibited good antioxidant activity againstDPPH scavenging reagent and however the concentration increases also the antioxidant Activity of the compound increases as compared to the standard ascorbic acid.(12)

I) In vitro anti-inflammatory activity by Protein denaturation method

The reaction mixture (10 mL) consisted of 0.4 mL of egg albumin (from fresh hen's egg), 5.6 mL of Phosphate buffered saline (PBS, pH 6.4) and 100 µL of different concentration sample.

Similar Volume of double-distilled water served as control. Then the mixtures were incubated at (370c ±2) inA incubator for 15 min and then heated at 70 Oc for 5 min. After cooling, their absorbance was Measured at 660 nm by using vehicle as blank. Diclofenac sodium at the concentration was used asReference drug and treated similarly for determination of absorbance. The percentage inhibition ofProtein denaturation was calculated by using the following formula,

% Inhibition = C –T/ C

Where, T = absorbance of test sample

C = absorbance of control

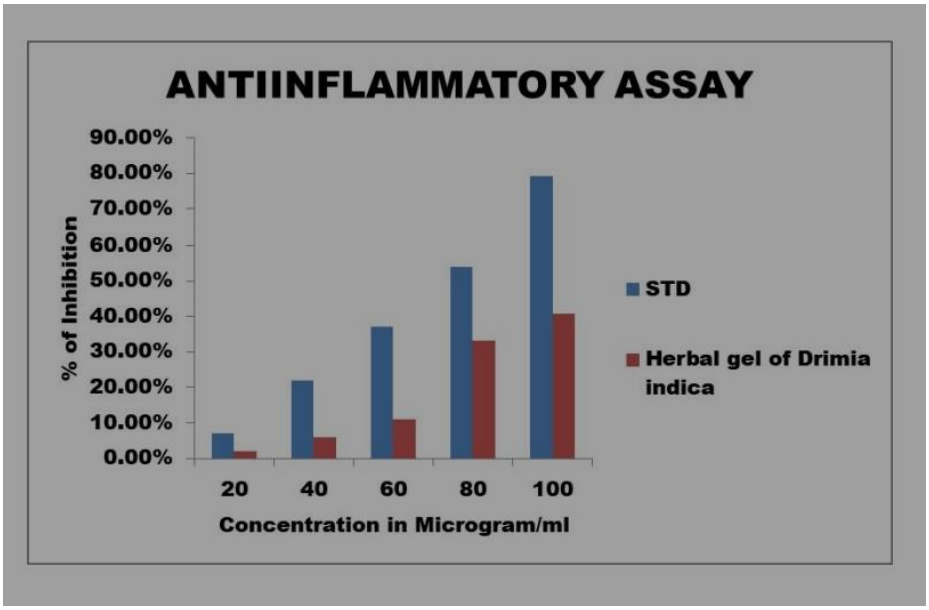
Observation table:

			Protein denaturation assay					
SR. NO	**Sample code**	**Concentration (µg/ml)**	**Absorbance at 660nm**					
			Test 1	**Test 2**	**Test 3**	**Mean**	**% Inhibition**	**IC50 (µg/ml)**
1	**Control**		1.54	1.54	1.54	**1.54**	-	**76.11**
2	**Standard(Diclofenac Sodium)**	**20**	1.43	1.44	1.43	**1.43**	**7.14%**	
		40	1.20	1.20	1.22	**1.20**	**22.07%**	
		60	0.96	0.97	0.98	**0.97**	**37.01%**	
		80	0.72	0.72	0.71	**0.71**	**53.89%**	
		100	0.32	0.34	0.32	**0.32**	**79.22%**	
3	**Herbal gel of Drimia indica**	**20**	1.51	1.51	1.51	**1.51**	**1.94%**	**NE**
		40	1.47	1.45	1.43	**1.45**	**5.84%**	
		60	1.39	1.37	1.36	**1.37**	**11.03%**	
		80	1.05	1.03	1.02	**1.03**	**33.11%**	
		100	0.93	0.90	0.91	**0.91**	**40.90%**	

Images of activity:



Graphical Data:



Conclusion of the study:

At the different concentrations the samples Sample Herbal gel of Drimia indica shows the moderately good anti-inflammatory activity as compared to standard DDiclofenaSodium. (13,14)

CONCLUSION

Results of the study revealed that the prepared polyherbal gel formulation from extract of Drimia Indica to treat skin disease like Herpes Zoster. Also the physical analysis and stability studies of the prepared gel proved potency and efficacy. Thus, this formulation is used to treat Human skin disease Herpes Zoster.

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HOW TO CITE: Rutuja Sawant, Pramod Chikkodi, Formulation And Evaluation of Herbal Gel from Drimia Indica for Herpes Zoster – Anti-Oxidant & Anti-Inflammatory Gel, Int. J. of Pharm. Sci., 2025, Vol 3, Issue 5, 2933-2941. https://doi.org/10.5281/zenodo.15452644