International Journal of Scientific Research in Science and Technology
Print ISSN: 2395-6011 | Online ISSN: 2395-602X (www.ijsrst.com)
doi : https://doi.org/10.32628/IJSRST229349

Antipsoritic And Wound Healing Activity of Leaves Extract by Simarouba Glauca and Cinnamomum Tmala

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Article Info
Volume 9, Issue 3
Page Number : 480-485

Publication Issue
May-June-2022

Article History
Accepted : 01 June 2022
Published : 07 June 2022

ABSTRACT

The present investigation has been undertaken to study the antipsoritic activity properties of ethyl acetate and aqueous extracts of Simarouba glauca and wound healing activity properties of petroleum ether and acetone extracts of Cinnamomum tmala. The both plants have a long history in herbal medicine in many countries. Experiments were conducted following standard procedures. Both extracts were evaluated for their in vitro antipsoritic activity and wound healing activity properties. The PECT and ACCT suspension of Cinnamomum tmala extract as Myrcene were administered topically, for evaluating the wound healing potential in excision wound model for in infected excision for fifty teen days. Povidone iodine was the standard for excision wound models. Simarouba glauca extract as Quassine evaluating for antipsoritic activity. The result may be attributed to the phytoconstituents such as terpenoids present in it which may be due to their individual or cumulative effect that enhanced wound healing and antipsoritic activity provided scientific evidence to the and futures of Simarouba glauca and Cinnamomum tmala.

From the animal study we observed that toxicity is not occurs when animals were doused with wound healing activity and antipsoritic we observed that Myrcene and Quassine product shows the better action as wound healing activity and antipsoritic with minimum side effects like sedation. All the data related to the pharmacological activity was statistically analyzed.

Keywords: EASG, AQSG, PECT, ACCT, Wound healing, Antipsoritic.

I. INTRODUCTION

Simarouba glauca (S.glauca, abbreviated as SG), commonly known as 'Laxmitaru' or 'Paradise tree' belongs to the family Simaroubaceae. SG has been utilized in traditional system of medicine as anticancer, antimicrobial, antiviral and antihelminthic agent, especially in regions covering Southern Florida, the West Indies and Brazil.[1] A search using the words "Simarouba glauca", "Paradise Tree", "Tricaproin", "Laxmitaru" was conducted in PubMed (http://www.ncbi.nlm.nih.gov/pubmed/) and

google scholar (https://scholar.google.co.in/scholar) and the articles found were selected based on their relevance to the theme of the review. Also Common names include Paradise Tree, Aceituno, and Bitter wood Priority has been given to those that are directly related and recent. S. glauca is a rich source of nutrients that include lipids, fatty acids, carbohydrates and proteins. While seeds contain oil (up to 60% weight/ weight), the kernals provide edible fat consisting of palmitic (12.5%), oleic (56%) and stearic (27%) acids.[2-5]

Cinnamomum tamala is a multipurpose evergreen plant it is a native of India. The plant is commonly known as Indian cassia, Tejpatta, Indian bay leaf etc. Dried leaves of Cinnamomum tamala spread are used to flavour a variety of food preparations. Plant bark and leaves are good source of aromatic essential oil which possesses phenolic compounds which show multiple therapeutic effects against Alzheimer's disease, diabetes, arthritis, and arteriosclerosis. Plant emits clove-cinnamon like flavor. Essential oil is golden-yellow in colour, and possesses a very hot aromatic taste. Plant bark is rich source of cinnamaldehyde that provides a pungent taste and strong aroma that after exposure with oxygen, it become dark in colour and forms resinous compounds.[6] Cinnamon essential oil contains more than 80 compounds[7] including eugenol and cinnamaldehyde as major constituents. Oil of cinnamomum is used in baked goods[8] and to flavor various alcoholic beverages.[9] Cinnamon is mixed during distillation process to prepare cinnamon liqueur or barndy. It is also added to flavor white wine mainly Maiwein and vodka in Europe.[10] Cinnamon bark is used as spice to flavor food. It is used in cookery as a condiment and flavouring material. It is also used to produce flavored chocolates in Mexico.[11]

II. METHODS AND MATERIAL

Plant Material: Fresh leaves of Simarouba glauca were collected from Sardarkrushinagar Dantiwada Agricultural University, Dantiwada, Banaskantha, Gujarat, India, in March 2021 and the leaves of Cinnamomum tamala were purchased from herbal drug supplier of Mandsaur (M.P.) both plants authenticated in Basavaprabhu Kore Art's Science and Commerce College, K..L.E. Society's, Chikkodi, India. **Preperation of extract:** Dried leaves of were extracted with ethanol by successive solvent extraction technique by using soxhlet apparatus for 72 hrs. The extract was dried under vaccume and stored in glass container for further use.

Preparation of leaf extract of extraction, approximately 5 g of dried leaves powder were taken in 50 ml different solvents (chloroform, petroleum ether, ethyl acetate, n-butanol, methanol and aqueous) based on increasing polarity and kept under gentle and continuous shaking on an orbital shaker (Orbital Shaking Incubator - REMI) for 24 h. The suspensions so obtained were filtered using Whatman No.1 papers to obtain the crude extracts. The resulting extracts were concentrated in vacuum at 40ºC using a rotary evaporator and freeze drying. The dry weight of the leaves extracts were obtained by the solvent evaporation and used to determine concentration. Dry extracts were then kept in sterile bottles, under refrigerated conditions, until further use.[12]

III. RESULTS AND DISCUSSION

Extraction yields of Simarouba glauca and Cinnamomum tamala

For the Antipsoritic activity study of leaf extract of Simarouba glauca, the dried powder was successively extracted in chloroform, petroleum ether, ethyl acetate, n-butanol, methanol and aqueous. It can be seen that the polar solvents (n-butanol, methanol and water) gave much higher % yields in the extractions than the non-polar solvents (chloroform, petroleum

ether, ethyl acetate) indicating that the leaf extract of Simarouba glauca have a greater abundance of polar over non-polar compounds. Moreover, highest extraction yield was obtained in methanol as compared to other solvents (petroleum ether, ethyl acetate, n-butanol and water). Thus, methanolic extract was used for the antipsoritic activity of Simarouba glauca.

Table 1 : Extraction yields of Simarouba glauca

Name of the Plan		Solvents					
		Chloroform	Petroleu Ether	Ethyl Acetate	n-Butanol	Methanol	Aqueous (Water)
Simarouba glauca	Mass of Extract (g)	0.075	0.077	0.09	0.1	0.247	1.07
	(% of yield)	1.5	1.54	1.8	2	4.94	4.28

Table 2 : Extraction yields of Cinnamomum tamala

Name of the Plan		Solvents					
		Chlorofor m	Petroleu Ether	Ethyl Acetate	n-Butanol	Methanol	Aqueous (Water)
Cinnamomu m tamala	Mass of Extract (g)	0.065	0.249	0.05	0.1	0.235	1.01
	(% of yield)	1.4	4.96	1.2	2	4.85	4.21

Table 3 : Percentage imiquimod induced in psoriasis model for back thickness by Quassine.

Back Skin Thickness					
	1	2	3	Avg	STDE V
Uninduced Untreated	0.45	0.41	0.43	0.43	0.02
Induced Untreated	0.92	0.97	0.89	0.93	0.04
Acitretin	0.71	0.74	0.68	0.71	0.03
Quassin	0.82	0.77	0.86	0.82	0.05

Table 4 : Percentage imiquimod induced in psoriasis model for ear thickness by Quassine

Ear Thickness (mm)					
	1	2	3	Avg	STDEV
Uninduced Untreated	0.18	0.19	0.17	0.18	0.01
Induced Untreated	0.35	0.35	0.36	0.35	0.01
Acitretin	0.31	0.32	0.32	0.32	0.01

Quassin	0.33	0.33	0.32	0.33	0.01

Table 5 : Percentage wound contraction in excision wound model as Myrcene

Excision mm3							
Myrcene							
Days	**1**	**2**	**3**	**avg**	**STDEV**	**% wound open**	**% wound closure**
0	122	110	100	110.7	11.0	100.0	0.0
3	80	100	80	86.7	11.5	78.3	21.7
6	35	60	40	45.0	13.2	40.7	59.3
9	5	10	5	6.7	2.9	6.0	94.0
12	0	0	0	0.0	0.0	0.0	100.0
15	0	0	0	0.0	0.0	0.0	100.0

Table 6. : Percentage wound contraction in excision wound model as Povidone iodine ointment

Excision mm3							
Povidone iodine ointment							
Days	1	2	3	avg	STDEV	% wound open	% wound closure
0	130	120	125	125.0	5.0	100.0	0.0
3	65	80	80	75.0	8.7	60.0	40.0
6	60	70	65	65.0	5.0	52.0	48.0
9	10	20	30	20.0	10.0	16.0	84.0
12	5	10	5	6.7	2.9	5.3	94.7
15	0	5	5	3.3	2.9	2.7	97.3

Table 7 : Percentage wound contraction in excision wound model as UT

Excision mm3							
					UT		
Days	**1**	**2**	**3**	**avg**	**STDEV**	**% wound open**	**% wound closure**
0	125	130	120	125.0	5.0	100.0	0.0
3	115	120	100	111.7	10.4	89.3	10.7
6	80	85	75	80.0	5.0	64.0	36.0
9	60	65	50	58.3	7.6	46.7	53.3
12	50	50	40	46.7	5.8	37.3	62.7
15	45	40	40	41.7	2.9	33.3	66.7

IV. CONCLUSION

The petroleum ether extract of Cinnamomum tamala leaves was evaluated for wound healing activity in rats. The wound healing studied by excision, incision and deadspace wound models. The high blood glucose level is the root cause of delayed wound healing in patients. The treatment of petroleum ether extract of C. tamala leaves promotes wound healing increased granulation of tissue with increased tensile strength. Further studies are needed to identify active compound responsible for faster wound healing activity with detailed mechanism of action. The investigation and research on medicinal plants might bring to the scientific world many useful remedies for the treatment and cure of human sufferings. The leaf extract of Simarouba is well known for its different types of pharmacological properties such as haemostatic, antihelmenthic, antiparasitic, antidysentric, antipyretic and anticancerous, leaves was evaluated for antipsoratic activity in rats.

V. ACKNOWLEDGEMENT

I would like to acknowledge the Department of Pharmaceutical Science, Madhav University, Pinwara Sirohi Rajasthan, India.) for providing necessary scientific and technical support for carrying out this study.

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Cite this article as :

Mahesh J. Patil, Dr. Mrunal Shirsat, "Antipsoritic And Wound Healing Activity of Leaves Extract by Simarouba Glauca and Cinnamomum Tmala", International Journal of Scientific Research in Science and Technology (IJSRST), Online ISSN : 2395-602X, Print ISSN : 2395-6011, Volume 9 Issue 3, pp. 480-485, May-June 2022. Available at doi : https://doi.org/10.32628/IJSRST229349
Journal URL : https://ijsrst.com/IJSRST229349