

Efficacy of Medicinal Plants for Reducing the Symptoms of Psoriasis: A Review Article

Aitazaz Ahsan  Humaira Zafar  Huamira Naureen  Kamil Anum  Kamran Afridi 

¹ Department of Pharmacognosy, Riphah International university, Islamabad, Pakistan

² Pathology, Al Nafees Medical College & Hospital, Isra University Islamabad Campus, Pakistan

Psoriasis is a common skin disease which is characterized by plaques and patches on the skin. Psoriasis is an autoimmune disease that involves T helper cells in the pathogenesis of the disease. Treatment of psoriasis is long term and not completely cures the disease. Plants have been extensively used in the treatment of different diseases so plants with anti-psoriatic activity have also been investigated. Results showed that Polypodium Decumanum, Wrightia Tinctoria, Cassia Tora and Givotia Rottleriformis Griff have significant activity in relieving symptoms of psoriasis.

Keywords: Psoriasis, Herbal, Polypodium Decumanum, Wrightia tinctoria, Cassia Tora, Givotia rottleriformis Griff

Introduction

Psoriasis is a chronic inflammatory disease involving plaques and scales on the skin that cause functional impairment. Data suggested that 2% of the world population is suffering from psoriasis involving a 5% prevalence in the western population (1). Psoriasis is also known as an autoimmune disease because the pathogenesis of psoriasis supports the involvement of helper T-cells (Th1, Th2 and Th17) found in lesions (2). Risk factors in women include adiposity and weight gain (3). Long term untreated psoriasis leads to psychiatric complications like depression, anxiety and

suicidal ideation. Psychiatric complications may affect the response of patients to psoriatic treatments with a negative impact (4). Younger patients with mild to severe psoriasis have the highest risk of getting Myocardial infarction (5). Children suffering from pustular psoriasis with eruptions of pustules on an erythematous base experience renal failure and cholestatic jaundice as a result of treatment which also increases the risks of lymphoma (6). The prevalence of psoriasis is more in young females with lesser chances in young males and very less in people with old age (7).

Corresponding: Humaira Zafar, MD; Pathology, Consultant Microbiologist, Al Nafees Medical College & Hospital, Isra University Islamabad Campus, Pakistan

ORCID ID: 0000-0003-3785-5670

E-mail: dr.humairazafar@yahoo.com

Received: Oct 23, 2019 **Accepted:** Dec 28, 2019

Published: Mar 17, 2020

This is an Open Access article distributed under the terms of Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, or reproduction in any area, original work is properly cited.

The Ulutas Medical Journal © 2020



Literature Review

Medicinal plants for the management of psoriasis

Plants have been used for centuries for treatment and even today researchers are depending more on plants as medicines because of lesser side effects (8).

Polypodium Decumanum

It is a fern of the Polypodiaceae family and efficiently used for treating various skin diseases like psoriasis and contains various polyphenols which have antioxidant and photo-protecting role (9). Psoriatic lesions contain a high amount of the inflammatory mediators leukotriene B₄ (LTB₄) which is efficiently inhibited by polyunsaturated fatty acids like linoleic, linolenic and arachidonic acids found in polypodium Decumanum. Crude methanolic extracts of *Polypodium Decumanum* exhibited better antipsoriatic activity. The stock solution of LTB₄ ionophore was prepared in ethanol and added in methanolic extracts of *Polypodium Decumanum* as a test and in sulfasalazine as the positive control. Human leukocytes were collected after centrifugation with 2% dextran T-500 and 0.9% NaCl for 30 min at 4°C and erythrocytes were lysed by using Ca and Mg free buffer. LTB₄ and extract of calaguala were incubated at 37°C and LTB₄ then purified and analyzed by using HPLC to detect inhibition of LTB₄. Results showed that LTB₄ was inhibited by free unsaturated fatty acids in the extract of *Polypodium Decumanum* at a concentration of 130 µg/ml (10).

Wrightia tinctoria

Extensively used plant *Wrightia tinctoria* from family Apocynaceae is the lesser-known plant in Indian literature of medicine system (11). But it has moderate analgesic and anti-inflammatory activity at 1000 mg/kg dose (12). The herbal

extract of *Wrightia tinctoria* was prepared and quality control parameters were also analyzed by HPLC. After extraction and standardization, 12g of seed powder was induced in patients diagnosed with psoriasis. Standardized extract of *Wrightia tinctoria* significantly reduced parameters of psoriasis such as scaling, itching, and psoriasis area by inducing emesis (13).

Cassia Tora

Senna Tora from family Fabaceae have been extensively investigated due to anthraquinone and naphthopyrone components of this plant (14). *Senna Tora* is effective in psoriasis and also possess anti-microbial activity in the form of an aqueous paste of seeds (15). Powdered extract of *Cassia Tora* leaves was prepared in ethanol by the Soxhlet apparatus and concentrated in a rotary evaporator. Flavanoids were eluted by using TLC and UV. Three compounds luteolin-7-O-β-glucopyranoside, quercetin-3-O-β-D-glucuronide and ormononetin-7-O-glucoside were analyzed through UV. Compounds 1, 2, 3 showed remarkable thickness in epidermal by influencing hyperproliferation of keratinocytes. Crude extract of *Cassia Tora* and its flavonoids have the potential to be used as antipsoriatic agents (16).

Givotia rottleriformis Griff

Givotia rottleri-formis belongs to the Euphorbiaceae family is a plant that is rich in phenolic compounds like gallic acid and methyl gallate. Both compounds inhibit COX1 and COX2 enzymes efficiently through anti-proliferative effects (17). Extract of powdered barks of *Givotia rottleriformis* in ethanol was prepared which was screened by UV and HPLC. It is then introduced into rats in which psoriasis was induced. After two weeks of extract administration, the histological examination of

rats was carried out. Results showed that the ethanolic extract of *Givotia rottleriformis* Griff exerts anti-psoriatic activity by inhibiting the hyperproliferation of keratinocytes (18).

Psoriasis significantly affects health-related quality of life which may lead to long-term health impairments like cardiovascular diseases, renal impairment and even psychiatric complications. Treatment of psoriasis is long term and not completely cures the disease instead it helps in relieving symptoms of the disease. One of the important factors that should be properly addressed is adherence to treatment. Plants have been used in treatments for centuries so there should be more need to develop more plants with anti-psoriatic activity with lesser side effects. Herbal and crude extracts of plants significantly relieve symptoms of psoriasis which provides evidence in future psoriasis that will be completely curable with minimum side effects and improved impact on health-related quality of life.

Conclusions

It is concluded from the current review article that *Givotia rottleriformis* Griff, *Polypodium Decumanum*, *Wrightia tinctoria* and *Cassia Tora* have significant activity in relieving symptoms of psoriasis.

Recommendations

The management by using extracts of *Polypodium Decumanum*, *Wrightia tinctoria*, *Cassia Tora* and *Givotia rottleriformis* Griff, can be helpful to treat Psoriasis.

Abbreviations

Th cells, T-helper cells; LTB₄, Leukotriene B₄; HPLC, UV, ultraviolet spectrophotometer, High-performance liquid chromatography; TLC, thin-layer chromatography.

Acknowledgments

The research was partially supported by Riphah International University Islamabad Pakistan. We thank our colleagues from (Riphah institute of pharmaceutical sciences Islamabad Pakistan) who provided insight and expertise that greatly assisted the research, although they may not agree with all of the interpretations/conclusions of this paper.

Conflict of Interests

The authors have declared no conflict of interest for the present article.

References

1. Kerkhof PCM, Schalkwijk J. Psoriasis in Dermatology 2nd ed by JL Bologna, JL Jorizzo, RP Rapini. Mosby Elsevier 2008
2. Lowes MA. Psoriasis vulgaris lesions contain discrete populations of Th1 and Th17 T cells Journal of Investigative Dermatology (2008). 2017;128:1207–1211
3. Setty AR. Obesity, waist circumference, weight change, and the risk of psoriasis in women: Nurses' Health Study II Arch Intern Med. 2007;167(15):1670-1675
4. Olivier C, Robert P, Daihung D, Urbà, G, Catalin M, Hywel W, et al.. The Risk of Depression, Anxiety, and Suicidality in Patients With Psoriasis Arch Dermatol. 2010;146(8):891-895
5. Gelfand J, Neimann A, Shin D, Wang X, Margolis D, Troxel A. Risk of Myocardial Infarction in Patients With Psoriasis JAMA. 2006;296:1735-1741
6. Li S, Tang W, Lam W, Wong S. Renal failure and cholestatic jaundice as unusual complications of childhood pustular psoriasis. Bri J Derm. 2000;143:1292-1296
7. Gelfand J, Weinstein R, Porter S, Neimann A, Berlin J, Margolis D. Prevalence and Treatment of Psoriasis in the United Kingdom .Arch Dermatol. 2017;141:1990
8. Kopaei RM. Medicinal plants and the human needs. J HerbMed Pharmacol. 2012;1(1):1–2
9. González S, Gilaberte Y, Philips N. Juarranz A, Fernblock, a nutraceutical with photoprotective properties and potential preventive agent for skin photoaging and photoinduced skin cancers. Int J Mol Sci. 2011;12
10. Tuominen MV. The fern *Polypodium decumanum*, used in the treatment of psoriasis, and its fatty acid constituents as inhibitors of leukotriene B₄ formation Prostaglandins, leukotrienes and essential fatty acids. 1994;50:279-284
11. Khyade MSE. Comparative Phytochemical and antibacterial studies on the bark of *Wrightia Tinctoria* and *Wrightia arborea*: Int J Pharm Bio Sci. 2011;2:176-181

12. Bigoniya P. Pharmacological Screening of *Wrightia tinctoria* Bark Hydro Alcoholic Extract Asian J Exp Sci. 2008;22(3):235-244
13. Bhattacharyya N, Pujar M, Chaturvedi A, Kumar M, Lohith, B, Kumar SK. A Clinico-analytical study on seed of *Wrightia antidysenterica* Linn. as a therapeutic emetic agent (Vamaka Yoga) in the management of psoriasis. Pharmacognosy Res. 2016;8(1):19-25
14. Pawar H, Lalitha K. Extraction, Characterization, and Molecular Weight Determination of *Senna tora* (L.) Seed Polysaccharide Int J Biomat. 2015; 1:6
15. Roopashree T, Dang R, Rani R, Narendra C. Antibacterial activity of antipsoriatic herbs: *Cassia tora*, *Momordica charantia* and *Calendula officinalis* Int J Applied Res Nat Products. 2008; 1(3): 20-28
16. Vijayalakshmi A, Madhira G. Anti-psoriatic activity of flavonoids from *Cassia tora* leaves using the rat ultraviolet B ray photodermatitis model. Rev Bras Farma. 2014;24(2014):322-329
17. Kamatham S, Kumar N, Gudipalli P. Isolation and characterization of gallic acid and methyl gallate from the seed coats of *Givotia rottleriformis* Griff. and their anti-proliferative effect on human epidermoid carcinoma A431 cells. Toxicol Rep. 2015;3:520-529
18. Vijayalakshmi A, Geetha M. Anti-psoriatic activity of *Givotia rottleriformis* in rats Ind J Pharmacol. 2014;4:6

Contact Details

Aitazaz Ahsan; Department of Pharmacognosy, Riphah International university, Islamabad, Pakistan; E-mail: aitazazahsan@gmail.com; ORCID ID: 0000-0002-5353-6752

Humaira Zafar; Pathology, Consultant Microbiologist, Al Nafees Medical College & Hospital, Isra University Islamabad Campus, Pakistan; E-mail: dr.humairazafar@yahoo.com; ORCID ID: 0000-0003-3785-5670

Humaira Naureen; Department of Pharmacognosy, Riphah International university, Islamabad, Pakistan; E-mail: humaira.naureen@riphah.edu; ORCID ID: 0000-0002-8905-9126

Kamil Anum; Department of Pharmacognosy, Riphah International university, Islamabad, Pakistan; E-mail: Kamil.Anum@riphah.edu; ORCID ID: 0000-0002-5561-7521

Kamran Afridi; Department of Pharmacognosy, Riphah International university, Islamabad, Pakistan; E-mail: aitazazahsan@gmail.com; ORCID ID: 0000-0002-9892-4134

How to cite?

Ahsan A, Zafar H, Naureen H, Anum K, Afridi K. Efficacy of Medicinal Plants for Reducing the Symptoms of Psoriasis: A Review Article. Ulutas Med J. 2020;6(1):1-4

DOI: 10.5455/umj.20201020101533