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HPTLC Validation for Psorolin Medicated Bathing Bar

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Abstract

The present study discusses about the HPTLC confirmation of the herbs used in the Siddha product, Psorolin medicated bathing bar. The study findings clearly confirm that all the herbs are well preserved in the soap base without any disintegration or denaturation. Assuming the therapeutic value of all the herbs used, the well preserved status of these herbs in soap base validates their drug efficacy. Findings are discussed in the paper.

Keywords: *Medicated soap, Wrightia tinctoria, Aloe vera, psoriasis*

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INTRODUCTION

From time immemorial, various herbal preparations are being used in India as medicaments for different diseases/problems such as enhancing hair growth, treating dandruff, alleviating pain, skin dryness etc. The traditional Indian system of medicine has rich mention of various herbs that are used for treating wide variety of diseases including psoriasis and vitiligo. Most of the herbal drugs are prepared either with single herb or with multiple herbs [1–3].

When such medicinal plants are used in the Siddha drug preparations with the assumption that these herbs would impart therapeutic benefits, the presence of the herbs in the final formulation needs to be ascertained in order to validate the above assumption. The fingerprints of the individual herbs should be detectable in the finished product.

In our previous study, we have established the drug definition of PMBB through extensive analytical studies [4]. The role of PMBB in the treatment of psoriasis as one of the drugs under 1-3-2 treatment strategy was already established through a CTRI (Clinical Trail Registry of India –CTRI/2014/10/005143-2014) registered clinical trial (Data on file).

In the present paper, we report the confirmation and fingerprint matching of different herbs in the proprietary Siddha medicine, Psorolin medicated bathing bar. The findings are discussed in the paper.

MATERIALS AND METHODS

Description

Psorolin medicated bathing bar is a licensed proprietary Siddha medicine of Dr. JRK's Siddha Research and Pharmaceuticals Pvt. Ltd. Chennai.

Composition of Psorolin Medicated Bathing Bar

Kumari (*Aloe vera*) thailam : 10%
Indrajava (*Wrightia tinctoria*) thailam : 10%

Preparation of Oil Extracts of Individual Herbs

10% extracts of *Aloe vera* and *Wrightia tinctoria* were prepared individually in oil. In brief, 10 kg of each herbal material was treated with cryo-fluid (liquid nitrogen) and stirred to coagulate the herbal materials and then 50 kg of oil was added. Subsequent to oil addition, the mixture was once again treated with cryo-fluid and additional 50 kg of oil. The entire mixture was incubated for 5 days with regular stirring. After incubation, the oil was filtered and used.

HPTLC ANALYSIS OF OIL EXTRACTS OF INDIVIDUAL HERBS OF PSOROLIN MEDICATED BATHING BAR

All the above oil extracts were treated with methanol at 1:1 ratio. 5 µl of the methanolic fraction of each oil extract was loaded separately on HPTLC plate-silica gel 60F254 of E.MERCK KGaA and was allowed to run using a mobile phase composed of Toluene: Ethyl acetate at 9.5: 0.7 ratio.

The plates were scanned through a TLC scanner (CAMAG TLC Scanner 3 "Scanner3_150607" S/N 150607 (1.14.28) at 254nm and the profile was subjected to derivatization using p-anisaldehyde sulphuric acid stain and the derivatized TLC plate was scanned at 366 nm. The profile of each herbal extract was recorded.

Preparation of Psorolin Medicated Bathing Bar

To the pre-prepared soap/bathing bar base, 10% of *Aloe vera* extract and 10% of *Wrightia tinctoria* extract were incorporated and mixed thoroughly.

HPTLC Study of Psorolin Medicated Bathing Bar

Since there is no proven method for the separation of herbal extracts from soap/bathing bar base available, we have adopted an alternative method to study the HPTLC profile of Psorolin medicated bathing bar. Instead of soap bathing bar base we have used oil as base. To the 100 ml of oil, 10% of *Aloe vera* and 10% *of Wrightia tinctoria* were incorporated. This mixture was subjected to HPTLC separation and subsequent derivatization. The TLC profile was scanned at 254 nm and was derivatized using p-anisaldehyde sulphuric acid stain and was scanned at 366 nm. The Rf values were tabulated.

RESULTS

The HPTLC chromatogram has revealed the distinct signature fingerprints of *Aloe vera* and *Wrightia tinctoria* present in the Psorolin medicated bathing bar (Table 1) when scanned at 254 nm and after derivatization at 366 nm. The individual profiles of each herb could be seen in Psorolin medicated bathing bar as well.

Table 1: *HPTLC Profile of Various Herbal Extracts Psorolin Medicated Bathing Bar Scanned at 254 nm.*

Details of the Herbs and Rf Value		
AV	**WT**	**PMBB**
0.01	0.01	0.1
0.14	0.1	0.14
0.21	0.14	0.27
0.31	0.27	0.38
0.34	0.37	0.46
0.38	0.45	0.51
0.52	0.52	0.59
0.6	0.59	0.81
0.74	0.81	-
0.81	0.9	-

The signature fingerprint of the individual herb could be distinctly identified in Psorolin medicated bathing bar through chromatogram (Table 2).

Table 2: *Derivatization of Various Herbal Extracts of Psorolin Medicated Bathing Bar Scanned at 366 nm.*

Details of the Herbs and Rf Value		
AV	**WT**	**PMBB**
0.04	0.04	0.03
0.15	0.13	0.12
0.19	0.18	0.14
0.38	0.27	0.18
0.62	0.37	0.27
0.69	0.45	0.32
0.82	0.6	0.37
-	0.67	0.60
-	0.69	0.67
-	0.72	0.68
-	0.82	0.81

AV: Aloe Vera; WT: Wrightia tinctoria; PMBB: Psorolin Medicated Bathing Bar.

TLC profile of the free oil from Psorolin medicated bathing bar matched with the profile of oil extract of *Wrightia tinctoria* and *Aloe vera* (Figures 1 and 2).

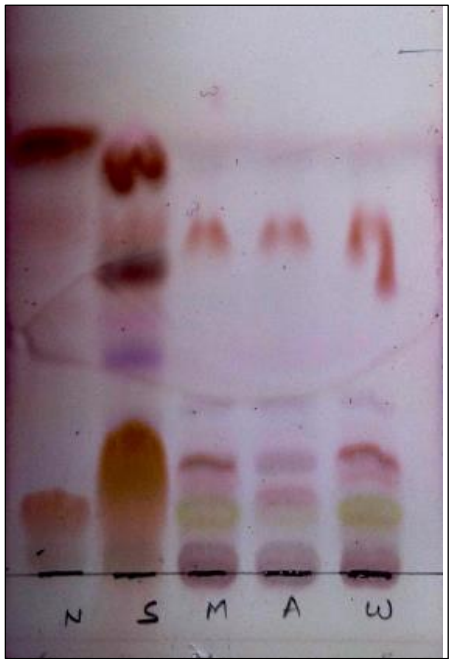

Fig. 1: *(Anisaldehyde Derived TLC Profile).*

Fig. 2: *(10% Methanolic Sulphuric Acid Derived TLC Profile).*

Lane 1: N: Soap Noodles.
Lane 2: S: Psorolin medicated bathing bar.
Lane 3: M: Mixture of oil extract of *Wrightia tinctoria* and *Aloe vera.*
Lane 4: A: Oil extract of *Aloe vera.*
Lane 5: W: Oil extract of *Wrightia tinctoria.*

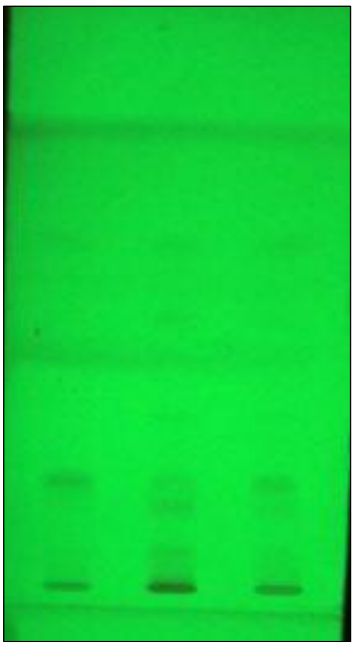

Fig. 3: *HPTLC Finger Print of Herbs Used in Psorolin Medicated Bathing Bar Scanned at 254 nm.*

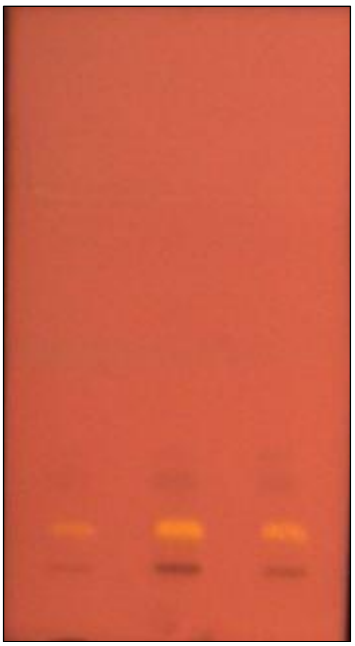

Fig. 4: *HPTLC Finger Print of Herbs Used in Psorolin Medicated Bathing Bar Scanned at 366 nm.*

Lane 1: *Aloe Vera*
Lane 2: *Wrightia tinctoria*
Lane 3: PMBB

DISCUSSION

Despite the use of herbs with proven efficacy at laboratory level, when traditional medicine are made with such proven herbs, the clinical efficacy remains doubted and questioned. The question on the adequate presence of individual herbs in the finished product is the mandatory prerequisite for the therapeutic benefits. Whether this fundamental tenet of drug making is followed in traditional systems of medicine, is unclear. To annul the above disconnect and to establish the credence between the product and its promise, we have evaluated the HPTLC chromatogram of Psorolin medicated bathing bar, a proprietary Siddha drug (Figures 3 and 4).

Findings of the study have clearly shown that Psorolin medicated bathing bar is effective purely because it has followed all the essentials of drug development. The herbs used in the formulation are equally effective at laboratory test as well as in the product because the presence and concentration of each herb could be established in the finished product.

The presence of unique fingerprint of each herb in Psorolin medicated bathing bar clearly suggests the least interaction between different herbs in bathing bar resulting in either their modification or degradation. This proves that each herb individually and collectively exhibit their best therapeutic effect thus making Psorolin medicated bathing bar the most effective bathing bar from Siddha system of medicine.

Considering the importance of preventing desquamation and to enhance exfoliation of hyper-proliferated psoriatic cells, which form the foremost treatment requirement, PMBB was formulated. Although PMBB may appear like a cleansing agent but it is indeed a drug essential for the treatment of psoriasis [4, 5].

Nevertheless the findings of the present study highlight the integration of an advanced science and scientific techniques by Dr. JRK's Research and Pharmaceuticals in developing Siddha drugs and revitalizing the Siddha system of medicine.

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