



Film forming resin of *Boswellia serrata* embedded with red ochre for Psoriasis – Psorolin B

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Abstract

The challenge posed by resinous and metalloid pharmaceutical agents in topical emulsion formulation has been addressed in Psorolin B and which we have confirmed through micro film assay. The resinous materials when incorporated in an emulsion system would sublime due to temperature difference whereas when the same is stitched with metalloid prior to incorporation into the emulsion system, become microfilms and would deliver its expected therapeutic benefit. In the present paper we have demonstrated the same through carefully crafted scientific experiment.

Keywords

Boswellic acid, Red ochre, microfilm, psoriasis, T-helper cell

Introduction

Boswellia serrata is one of the well proven botanicals used extensively for treating inflammatory diseases including Psoriasis.^{1,2,3} Several scientific studies have shown that both Boswellic acid and the resinous substances present in the plant have impeccable immune-suppressive activity, especially targeting the T-helper cell activity and proliferative effect of wide group of cells including tumor forming cells.^{4,5}

The active constituent of the plant is resinous in nature, therefore the incorporation of such substance in an emulsion system always pose challenge.^{6,7} The challenge further gets compounded when other ingredient (s) of the system is if a mineral – red ochre (oxide form of iron). The emulsion system either W/O or O/W, the emulsifier binds them together to keep the system to homogeneity. Resinous active agents of *Boswellia serrata* due to their high sublimation-volatile curve, needs to be incorporated in the formulation without interfering the emulsion system or bi-phase interaction adhesion as well as their partial or total loss from the formulation. If the formulation nuances allow the resinous material to form micro-film during usage and also the mineral constituent to dispense into the skin in timed manner, the best therapeutic benefit can surely be leviathan from such formulation.

Treatment of Psoriasis require not just the usage of correct and judicious phyto-pharmaceutical agent (s) in the formulation, the final delivery system of the pharmaceutical agents also must be regulated in an efficient manner. ⁸

Psorolin B is an advanced and therapeutically sophisticated ointment in the treatment arena of Psoriasis the recent medical science has ever seen obviously due to the advanced micro and macro level of science in the formulation engineering as well as making such an engineering to positively impact the treatment of Psoriasis and determine the outcome.

The present paper discuss about the formulation nuances and engineering brilliance of Psorolin B in presenting an emulsion system catapult resin film with mineral – red ochre for treating Psoriasis.

Materials and Methods

Application of cream over porch man paper

Two milligram of the cream was taken and was applied evenly over 2cm sq. area and was incubated for different time points such as 30 minutes, 80 minutes and 120 minutes. After incubation, the residue of the cream over porch man paper was scraped and tested for residual resin of *Boswellia serrata* and red ochre on the paper. Microscopic examination of the residue over the paper was also made for the above purpose.

Application of cream over silk cloth

As described above, the cream was applied over silk cloth and glass plate separately and after incubation period for given time point, the residue was examined for resin and red ochre residue. In the case of silk cloth, the reverse side of the cloth was also examined for the relics of resin of *Boswellia serrata* and red ochre.

Result

Table 1

Test details	Time in minutes/presence of resin and red ochre		
	20	80	120
Porch man paper	1+	2+	2+
Silk clothe	1+	2+	2+
Reverse side of silk cloth	2+	2+	2+
Glass plate	1+	2+	2+

In porch man paper, the residue was composed all ingredients of the ointment base including resin and red ochre could be detected by 80 minutes of contact time. Whereas in the case of silk cloth, resin and red ochre residue we could detect both at adaxial and abaxial sides after 80 and 120 minutes suggesting timed release of the active agents. Table 1

Microscopic examination of the residue in all test systems such as porch man paper, silk cloth and glass plate reveals that the dried up ointment left semblance micro film over the surface which even resisted gentle water treatment.

Discussion

Micro film forming dermatological preparations are known for several years and are also widely used in delivering several active drugs though topical route. The microfilm may provide best delivery or dispensing platform where the concentration of the drug and sustained delivery time, both can be achieved simultaneously. The active agents like resin of *Boswellia serrate* and totally immiscible constituent like red ochre incorporation in emulsion based ointment base is quite challenging because the resin would exhibit both sublimation and volatile curve; therefore when such ingredient is incorporated during heating phase of the ointment may either inactivate the agent or may affect the stability of the emulsion. Similarly, the red ochre is insoluble both in polar and non-polar solvents like water and oil in the biphasic ointment emulsion system. Therefore, such immiscible agent may compete with the emulsifier and may inhibit its participation stabilizing the biphasic heads. The sessile form of red ochre that are left out of the above reaction process are most likely to settle in different regions of the system resulting in non-coherent delivery to the skin. Therefore a reasonable level of pre-processing of red ochre is necessary before incorporation of the same into the emulsion system. The best possible measure of processing both resin and red ochre would be to make each of them compatible with one another so that the formulation challenge and therapeutic delivery challenge, both can be addressed like 'get two birds with one stone'.

Boswellia serrate is one of the well-studied botanicals by modern science and the resin and boswellic acid is proven to have steroid like action. Suppression of T helper cell activity and cell proliferation suppression of wide range of cells by the above botanical agent has proven to benefit several autoimmune diseases such as rheumatoid arthritis, psoriasis etc. Similarly the red ochre is also reported to have significant medical benefit in treating psoriasis. Due to the above prior art, many manufacturers have started to exploit the resin of *Boswellia serrate* to a large extent and red ochre in a small way in topical preparations for treating psoriasis. But very miniscule treatment benefit only seems to have many such products offer possibly due to inert participation of the agent from the formulation owes essentially to the formulation nuance.

In Psorolin B, we have applied micro film technology using the resin of *Boswellia serrate* sufficiently embedded and woven with red ochre. We guarded the above agents from interfering into the biphasic equilibrium of the ointment base.

Our experiment directly observing the micro film nature of the above agents in the final formulation i.e., Psorolin B has shown that the micro film forming agents remain outside of the emulsion system and on contact with air, become micro film to deliver the actives in a sustained manner.

Our earlier clinical trial have shown that Psorolin B is quite effective in alleviating most of the psoriatic symptoms in most patients who opted treatment with Psorolin B. The above clinical findings we largely

owe to the formulation nuances of bringing both resin and mineral in the emulsion system as microfilm forming bodies but without affecting the biphasic system.

Psorolin B is a possible ‘total relief’ in waiting for the Psoriatic patients and soon Psorolin B may ensure great relief like that of steroid but with no side effects of steroid as the resin of *Boswellia serrata* and red ochre has steroid like activity but not steroid. The present investigation offers a great scientific reassurance to the treatment of psoriasis that Psorolin B is going to bring psoriasis aggression under control and make the psoriatic skin feel normal and symptom free.

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