REVIEW THE FORMULATION OF TRIPHALADI PRATISARANA INTO A GEL DOSAGE FORM

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ABSTRACT

Introduction:Success of the treatment depends on the selection ofproper administration form. The concept of pharmacological dosage is critical in determining the drug's biological efficacy.Due to globalisation of Ayurveda Science it is need of time to transform our drug form into convenient form without compromising the efficacy of the remedies. So here, an attempt was made to modify the triphaladi pratisarana into new dosage form as Triphaladi Gel.Aim:In this study Triphaladi Gel was prepared in two different ways – In the first method triphala arka was prepared and then made into a gel while in the second method ethanolic extract of triphala was used in the preparation of gel.Materials and Methods: A High performance thin layer chromatography(HPTLC)analysis was done to compare the compounds of alcohol extract gel, arka gel to that of the classical pratisarana preparation. Result: illustrates that Triphaladi Alcoholic Extract Gel has similar bands to that of Triphaladi Pratisarana while Triphaladi Arka Extract Gel showed minimum bands.Alcoholic extract showed more number and concentrated compounds than that of arka which was almost similar to the pratisarana yoga.Conclusion: Hence better clinical effects can be expected from the alcoholic extract preparations.

Keywords:Arka drops, Herbal Extract, Phytochemical analysis

INTRODUCTION

Dosage form is a physical form of drug intended for administration or consumption by which the compounds are delivered into the sites of action within the body.[1]Many judicious processing procedures are available in Ayurvedic pharmaceutics to convert/modify medications into various dosage forms without sacrificing palatability, safety, or efficacy. All medicinal forms are prepared exclusively in accordance with the formulae described in authoritive textbooks of Ayurvedic system of medicine. With the improvement of pharmaceutical technologies, discovery of new diseases, encounter with new people a good number of dosage forms has been gradually developed in Ayurvedic pharmaceutics. New pharmaceutical forms enhances the drug absorption and bioavailability, enhancement of pharmacological action, increasing stability and shelf-life, improving tissue macrophages and sustained drug delivery system.[2] New drug delivery system has been developed to overcome the limitations of the traditional drug delivery systems to meet the need of healthcare profession.

Topical drug delivery systems are a continuous source of interest because of the benefits that they afford in overcoming many drawbacks associated with other modes of drug delivery. The reason may be attributed to ease of administration and patient compliance. Compliance is crucial in achieving good outcome.

Semi-solid dosage form possesses longer contact time when applied topically and effectively penetrate through to systematic circulation.The U.S.P. defines gels as a semisolid system consisting of dispersion made up of either small inorganic particle or large organic molecule enclosing and interpenetrated by liquid. Gels are a substantially dilute cross-linked system, which exhibits no flow when in the steady-state. Gels have a soothing action that encourages routine use and leaves skin nongreasy. It can be used for sensitive skin also. It keeps the skin hydrated. Gel formulations show good homogeneity, no skin irritation, good stability and anti-inflammatory activity.[3]

Due to globalisation of Ayurveda science it is need of time to convert our drug form into a user-friendly form without compromising the effect of the medicines. So here an attempt was made to convert a medicine triphaladi pratisaranainto new dosage form Triphaladi Gel. In general, gel formulation is more preferred amongthe other topical semisolid preparations, due to its high

viscosity (long residence time on the skin), moisturizingeffect on flaky skin (occlusive nature), morebio adhesiveness, less irritation, independent of watersolubility of active ingredients, ease of application, andbetter release characters.[4]Triphaladi pratisarana mentioned in Astanga Hridayam Uttarastanahas been improvised to a gel dosage form.

Aim and Objectives Gel has been prepared by two different methods i.e using arka of triphala and ethanolic extract of triphala and a preliminary phyto-chemical analysis has been done.

MATERIALS AND METHODS

Method of preparation of Triphaladi gel with arka

a. Preparation of Triphala arka[5]

50g of yavakuttatriphala churnam was soaked in 500ml water and left overnight. Next day arka was prepared by distillation using a distillation apparatus at 100ºC. The distilled arka was collected.[6] [FIG: 1]

b. Preparation of Gel

Ingredients

Triphala arka - 100ml

Saindhava - 5g

Kasisa - 5g

Kshoudra - 5g

Carbopol 940 - 4g

Methyl paraben - 0.1g

Propyl paraben - 0.1g

Sodium bicarbonate - to adjust pH

Triphala arka (100ml) was taken in a beaker. The parabens were added to it and heated to dissolve. Upon cooling, the other ingredients saindhava, kasisa, and kshoudra along with carbopol were added and mixed well with constant stirring. To this mixture sodium bicarbonate was added to neutralize. The beaker was kept aside overnight for the carbopol to swell. [FIG:3]

Method of preparation of Triphaladi gel with alcoholic extract [7]

A. Preparation of alcoholic extract of triphala

16g triphala churna was kept in 200 ml ethanol for 24hours with occassional shaking. Then it was filtered using a Whattmann filter paper. The extract was evaporated on water bath and dried at 100ºC in a hot air oven to get the alcoholic extract of triphala.[FIG:2]

B. Preparation of alcoholic extract gel

Ingredients

Triphala alcoholic extract - 5g

Kasisa - 5g

Saindhava - 5g

Kshoudra - 5g

Carbopol 940 - 4g

Methyl paraben - 0.1g

Propyl paraben - 0.1g

Sodium bicarbonate - To adjust pH

To 95ml distilled water methyl and propyl parabens were added, heated to dissolve and cooled to room temperature.The above obtained alcoholic extract was taken along with other ingredients in the above water and stirred well. The mixture was neutralized with sodium bicarbonate while stirring well and then kept aside overnight and stirred again for uniformity of the gel. The contents were stirredagain on 4^{th}, 6^{th} day and found the sample to be uniform.[FIG: 3]

Preparation of Triphaladi pratisarana yoga[8]

Ingredients

Triphala churna - 5g

Kasisa - 5g

Saindhava - 5g

Kshoudra - 5g

Method of preparation

Triphala churna along with finely powdered kasisa and saindhava was mixed thoroughly with kshoudra to obtain a thick semi-solid consistancy. Freshly prepared pratisarana was used for the analysis.

High Performance Thin Layer Chromatography[9]

To compare Triphaladi pratisarana, triphaladi arka gel and triphaladi alcoholic extract gel:

For high performance thin layer chromatography (HPTLC), aluminium plates pre-coated with silica gel 60 F254(10*10cm)of 0.2mm thickness(E.Merck, Germany) were used asstationary phase.The gel samples (Triphala, Extract, Arka) prepared were spotted on the HPTLC plate using automatic TLC applicator Linomat V. The composition of the mobile phase used was toluene:ethyl acetate: formic acid(5:5:0.5). The optimized chamber saturation time for the mobile phase was 30 min at room temperature.The plate was developed in solvent system using twin trough chamber and allowed to dry at room temperature. The plates were scanned at 254nm.The images werecaptured on CAMAG TLC Scanner with win-CATS software.

Densitonometric scan was done using Scanner 4 under 254nm from 8mm to 82mm to yeild a densitogram.The chromatogram was then recorded using a CAMAG Visualiser under 254nm and 366nm.[FIG: 4]

Results

Sterility test was done and the gel was found to be sterile[fig 5].Report attached.

DISCUSSION

In Ayurveda we are havingdifferent dosage forms like aqueous extract(kashaya), cold infusions(hima), hot infusions(phanta), fermented formulations(asava and arista) and water distillates(arka). But alcoholic extract preparations are not widely used in Ayurvedic formulations. In this study a gel has been prepared with alcoholic extract and water distillate of triphala. A HPTLC of the phytochemicalsof the formulations has been done. The result illustratesTriphaladi Alcoholic Extract Gel has bands both of pratisarana and water distilled gel product.The bands present in Triphaladi Arka Gel were not detectable in the pratisarana. Hence alsoholic extract gel is favoured over pratisarana and distilled arka gel.

There is previous study which indicates that extracts are better as they contain the volatile principles of the drug.[10] The extractive yield depends on solvents, time and temperature of extraction as well as the chemical nature of sample. Under the similar time and temperature conditions, the solvent used and the chemical property of sample are the most important factors. The traditional healers or practitioners make use of water primarily as a solvent but there are many reports where organic solvents showed better activity as compared with aqueous extracts. Earlier studies reported phytochemical substances like flavonoids, saponins, organic acids, steroids, carbohydrates, tannins, phenolic compounds, terpenoids, alkaloids, glycosides, sterols, sesquiterpenes and aminoacids, carotinoids in different plant extracts.[11] From this study we can infer that the gel prepared by the alcoholic extract is having almost all phyto-chemicalsthat are present in the pratisarana medicine form. So a betterpotency can be expected from the alcoholic extract preparations. Further detailed studies have to be done to prove the clinical efficacy.

CONCLUSION

In this study a comparison was done on the gel prepared by the arka extract and alcoholic extract of the same formulation. Alcoholic extract showed more yeild of compounds than that of arka and pratisarana yoga. Hence better clinical effects can be expected from the alcoholic extract preparations.

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FIG 1:Distillation of Triphala Arka

FIG 2:Preparation of alcoholic extract of Triphala

FIG 3:Triphaladi Alcoholic Extract Gel and Triphaladi Arka extract Gel

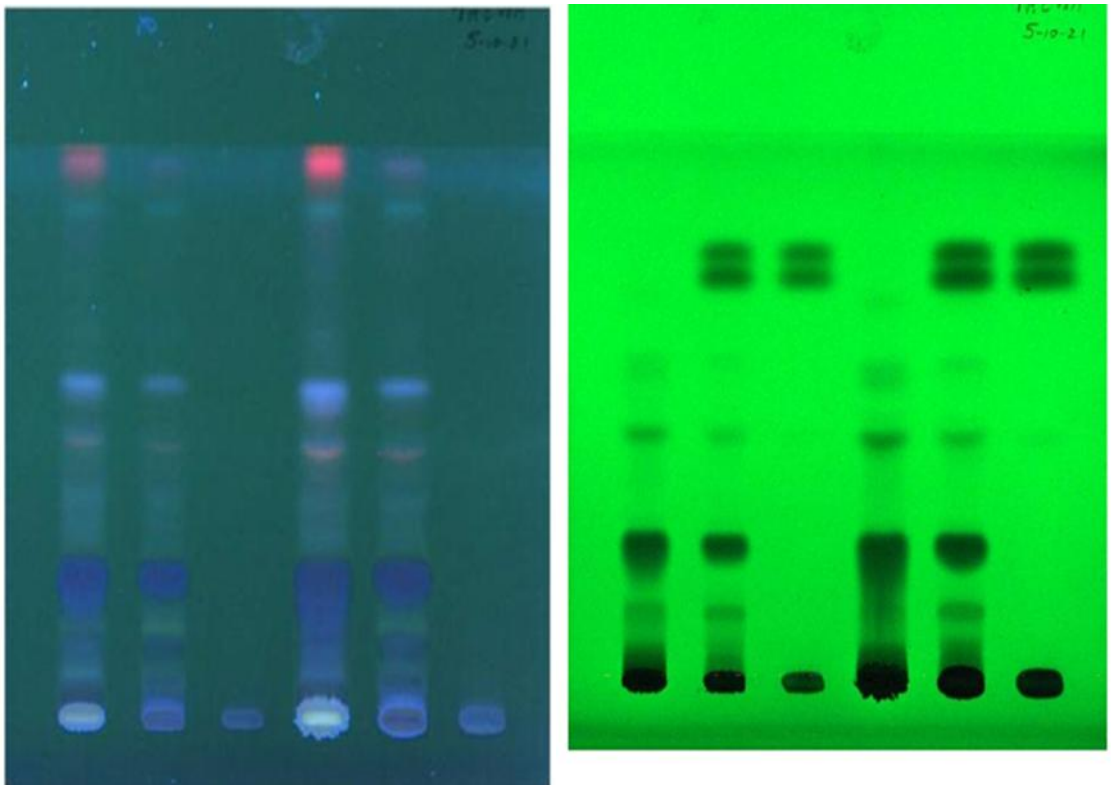
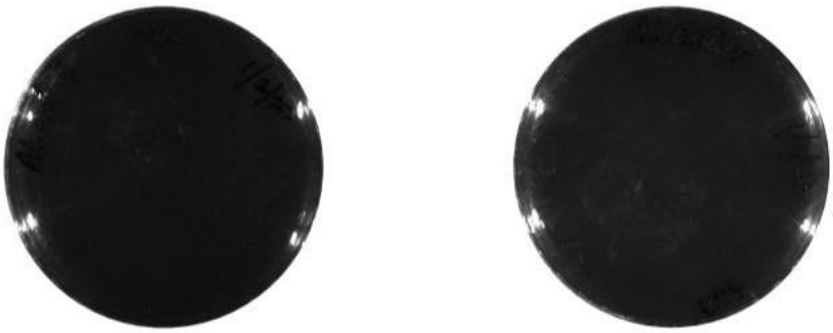


FIG 4: Track1 Triphaladi Pratisarana, Track 2 Triphaladi Alchoholic Gel, Track 3 Triphaladi Arka Gel

Results



(a) (b)

Fig1: Results of 100µl (10^{-1}diluted) sample spread over the (a) NA*media and incubated for 24 hours at 37°C (b) SDA*media and incubated for 48 hours at 35°C.

*NA media - Nutrient Agar Media (for bacteria)
*SDA media- Saboraud Dextrose Agar media (for fungi)

FIG:5 Sterility test result