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HPTLC EVALUATION OF KASEESA DRAVA

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ABSTRACT

The herbal and mineral preparations are a significant part of worldwide clinical practice. There is a well-established sub discipline known as “Rasa Shastra and Bhaishajya Kalpana”, which is entirely devoted to drug processing. Many unique classical techniques of preparation are still unexplored. Kaseesa drava is one such preparation. the use of metallic-mineral preparations in the clinical practice has raised safety concerns and debates in the scientific community.

KEYWORDS: Kaseesa, Kaseesa Drava.

INTRODUCTION

Analytical experimentation plays a significant role in developing a new drug. To make drugs serve their purpose, various analytical procedures are developed. The medicines will influence the body only if they are free from impurities and are administered in appropriate doses. From the stages of drug development to marketing, be it understanding the physical or chemical stability of the drug, impact on the selection and design of the dosage form, assessing the strength of drug molecules, quantization of the impurities, and identification of those impurities which are above the established threshold essential to evaluate the toxicity profiles of these impurities, when applicable assessing the content of drug in the marketed products are the crucial areas of the analytical procedures.

Ayurveda medicines are serving the needs of ailing humanity for many centuries. There is a need for systemic and well-organized coordination of allied sciences and adequate infrastructure and facilities to use Ayurvedic medicines in the modern era. For this purpose, there is a need for the analytical study of the drugs that are produced. This can help in the standardization of the drug and ensure that the drug gives appropriate action.

HPTLC[1]

Principle: It is a solid form of chromatography where the stationary phase is ordinarily polar absorbent, and the mobile phase can be a single solvent or combination of solvents. The underlying principle of HPTLC is adsorption. When a mixture containing one or more components is spotted on a thin layer of adsorbent coated on a chromatographic plate and introduced into a development tank containing the mobile phase, the mobile phase flows by capillary action. The components move across the layer according to their affinities. The element with more affinity with stationary phase travels slower, and that of lesser affinity travels faster. Thus, the components are separated on the thin layer based on their affinities towards the stationary phase.

Procedure

Sample preparation for HPTLC: 1gm of Kaseesa Drava sample was dissolved in 10.0ml of ethyl alcohol warmed on a water bath and filtered.

4, 8, 12µl of the sample was applied on a precoated silica F254 on aluminum plates to a bandwidth of 8mm using Linomat 5 T.L.C. applicator. The plate was developed in Toluene-Acetone: Formic acid (9.0:6.0:1.0), and the developed plates were visualized under Short UV, Long UV, and scanned under UV 254nm and 366nm. Rf, the color of the spots, and densitometric scan were recorded.

RESULTS

Table no 1: Rf values of sample of Kaseesa Drava.

At short UV	At long UV	Post derivatisation
-	0.58 (F. blue)	-
-	0.63 (F. blue)	-
-	0.70 (F. blue)	-
-	0.91 (F. green)	-

Table no 2: Rf values of the sample of Kaseesa Drava at 254nm wavelength.

Kaseesa Drava
-
-
-
-

Table no 3: Rf values of Kaseesa Drava at 366nm wavelength.

Kaseesa Drava
0.58 (F. blue)
0.63 (F. blue)
0.70 (F. blue)
0.91 (F. green)

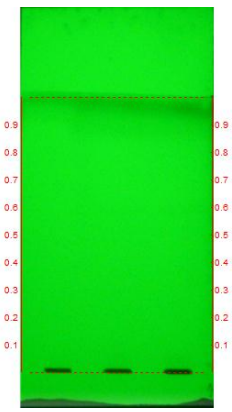
Table no 4: Rf values of sample Kaseesa Drava post derivatization.

Post Derivatisation
-
-
-
-

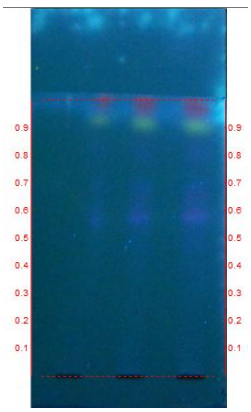
Table no 5: Densitometric scan at 254nm .

Kaseesa Drava
0.00 (76.67%)
0.34 (6.95%)
0.43 (5.09%)
0.62 (11.29%)

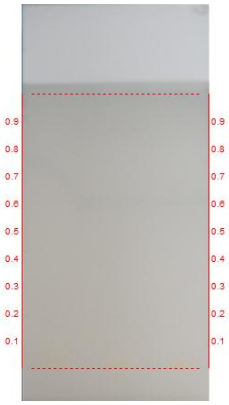
PICTURES OF HPTLC STUDY



At short UV



At long UV



Post derivatisation

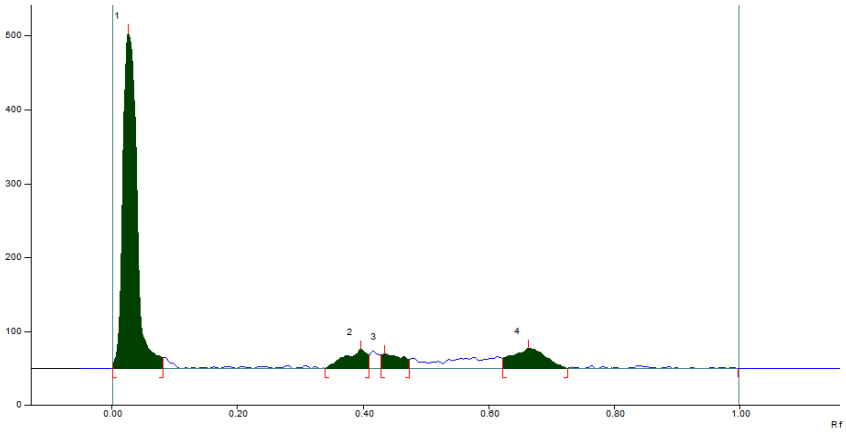
Solvent system – Toluene: Acetone: Formic acid (9.0:6.0: 1.0)

Track 1 – Ethanolic extract of **Kaseesa drava** – 4µl

Track 2 – Ethanolic extract of **Kaseesa drava** – 8µl

Track 3 – Ethanolic extract of **Kaseesa drava** – 12µl

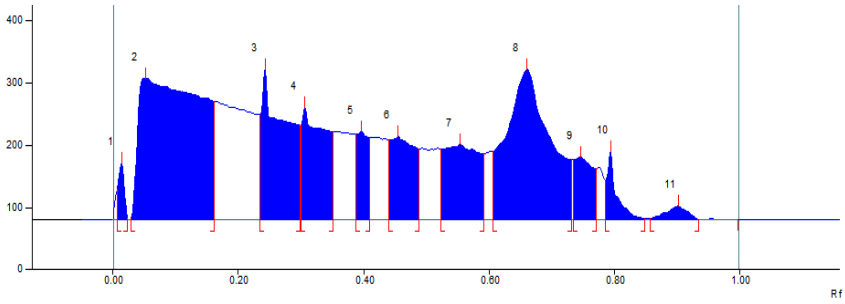
Fig 1: HPTLC Photo Documentation OF Kaseesa Drava.



Track 3, ID: Kaseesa Drava

Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.00 Rf	3.1 AU	0.03 Rf	453.5 AU	86.08 %	0.08 Rf	14.7 AU	7179.7 AU	76.67 %
2	0.34 Rf	0.3 AU	0.40 Rf	26.1 AU	4.96 %	0.41 Rf	18.3 AU	650.5 AU	6.95 %
3	0.43 Rf	18.0 AU	0.44 Rf	20.0 AU	3.80 %	0.47 Rf	11.9 AU	476.9 AU	5.09 %
4	0.62 Rf	14.0 AU	0.66 Rf	27.1 AU	5.15 %	0.73 Rf	0.5 AU	1056.9 AU	11.29 %

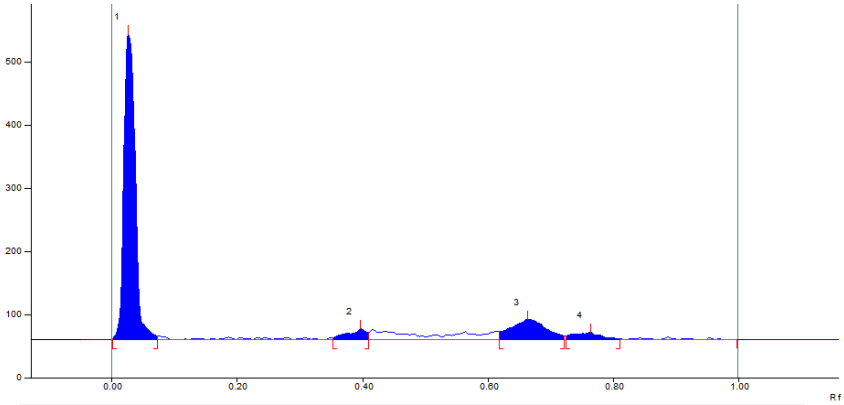
Fig 2: Densitometric Scan of Kaseesa Drava at 254nm.



Track 3, ID: Kaseesa Drava

Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.01 Rf	48.9 AU	0.01 Rf	90.4 AU	5.61 %	0.02 Rf	1.3 AU	645.3 AU	1.17 %
2	0.03 Rf	2.0 AU	0.05 Rf	227.2 AU	14.11 %	0.16 Rf	88.8 AU	16105.2 AU	29.19 %
3	0.24 Rf	168.6 AU	0.24 Rf	241.9 AU	15.03 %	0.30 Rf	51.5 AU	6725.3 AU	12.19 %
4	0.30 Rf	151.6 AU	0.31 Rf	179.7 AU	11.16 %	0.35 Rf	41.4 AU	4969.6 AU	9.01 %
5	0.39 Rf	137.1 AU	0.40 Rf	142.2 AU	8.83 %	0.41 Rf	31.4 AU	1916.1 AU	3.47 %
6	0.44 Rf	128.4 AU	0.45 Rf	133.8 AU	8.31 %	0.49 Rf	13.9 AU	3860.4 AU	7.00 %
7	0.52 Rf	113.3 AU	0.55 Rf	121.4 AU	7.54 %	0.59 Rf	06.2 AU	4883.0 AU	8.85 %
8	0.61 Rf	110.1 AU	0.66 Rf	242.0 AU	15.03 %	0.73 Rf	96.8 AU	12131.6 AU	21.99 %
9	0.74 Rf	96.7 AU	0.75 Rf	100.3 AU	6.23 %	0.77 Rf	81.5 AU	2214.8 AU	4.01 %
10	0.79 Rf	62.8 AU	0.80 Rf	109.6 AU	6.81 %	0.85 Rf	1.0 AU	1202.1 AU	2.18 %
11	0.86 Rf	1.0 AU	0.90 Rf	21.6 AU	1.34 %	0.94 Rf	0.1 AU	526.6 AU	0.95 %

Fig 3 - Densitometric Scan of Kaseesa Drava at 366nm fluorescence



Track 3, ID: Kaseesa Drava

Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.00 Rf	1.2 AU	0.03 Rf	482.4 AU	88.65 %	0.07 Rf	5.6 AU	6248.8 AU	75.72 %
2	0.35 Rf	3.2 AU	0.40 Rf	17.2 AU	3.17 %	0.41 Rf	11.2 AU	364.2 AU	4.41 %
3	0.62 Rf	12.8 AU	0.66 Rf	32.3 AU	5.94 %	0.72 Rf	6.3 AU	1281.4 AU	15.53 %
4	0.73 Rf	6.0 AU	0.76 Rf	12.2 AU	2.24 %	0.81 Rf	1.0 AU	358.6 AU	4.35 %

Fig 4: Densitometric Scan of Kaseesa Drava at 366nm absorbance.

DISCUSSION AND CONCLUSION

HPTLC analysis of Kaseesa Drava at 254nm showed no spots, which indicates that the procedure of bhavana has altered the components present in the formulation. HPTLC analysis of Kaseesa Drava at 366nm showed four spots at Rf values 0.58, 0.63, 0.70, 0.91. HPTLC analysis of Kaseesa Drava post derivatization showed no spots. A densitometric scan of Kaseesa Drava at 254nm showed four peaks, out of which peak at Rf value 0.00 (76.67%) had maximum percentage area.

The data evolved from the analytical study helps in standardizing the formulation to maintain its quality and efficacy. The peaks observed in HPTLC serve as the fingerprints of the formulation.

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