



Phytochemical and Pharmacognostical Study of *Cassia tora* in Eastern Rajasthan, India

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KEYWORDS

Cassia occidentalis, phytochemical analysis, pharmacognostical study, traditional medicine, Eastern Rajasthan, medicinal plants.

ABSTRACT:

Cassia occidentalis, commonly known as "Senna occidentalis," is a plant widely distributed in Eastern Rajasthan, India. This research paper aims to conduct a comprehensive phytochemical and pharmacognostical study of *Cassia occidentalis*, shedding light on its medicinal properties and potential applications in traditional medicine. The study involves the identification of bioactive compounds, evaluation of pharmacological activities, and a detailed examination of the plant's morphological and anatomical features.

Introduction:

Morphological and Anatomical Features: *Cassia occidentalis*, commonly known as coffee senna or septic weed, is a fast-growing herbaceous plant or small shrub belonging to the Fabaceae family. Morphologically, it features erect, branched stems that can grow up to 2 meters in height. The plant has pinnate compound leaves with 4-8 pairs of obovate to lanceolate leaflets, which are smooth, dark green on the upper surface, and paler below. The flowers are bright yellow, arranged in axillary racemes, with five conspicuous petals and prominent stamens. The fruit is a slender, cylindrical pod containing several flattened, dark brown seeds.

Anatomically, the stem is circular in cross-section, with a well-defined epidermis covered by a thin cuticle. The vascular bundles are collateral and open, surrounded by sclerenchymatous cells providing structural support. The leaf anatomy shows a dorsiventral arrangement, with a prominent midrib and spongy mesophyll cells for efficient gas exchange. Glandular trichomes are present, particularly on the leaf petioles and lower surfaces, which may aid in defense against herbivory. This species exhibits xeromorphic adaptations like thick-walled epidermal cells, enabling it to thrive in various environmental conditions, including arid and semi-arid regions.

Distribution: Although it originated in tropical America, it is currently grown across North and Central America, Asia, Africa, and Oceania. It grows in Punjab, Madhya Pradesh, Uttar Pradesh, Gujarat, Rajasthan, and Orissa in India.

Synonyms: *C. falcata* L., *C. foetida* Pers., *C. caroliniana*, *C. ciliata* Raf., *C. torosa* Cav., *C. planisiliqua*, *C. marcadenia*, *C. obliquifolia*, *C. occidentalis* L. var. *arista* sensu Hassk.

Taxonomical Classification:

Kingdom – Plantae

Division – Angiosperm

Class – Dicotyledonae

Order - Fabales

Family – Fabaceae

Genus – *Cassia*

Species – *C. occidentalis*

Fruiting and flowering: Plants bear flowers all year round. Fruiting takes place in November through January in Rajasthan and Gujarat.

Characters based on morphology: *Cassia occidentalis* Linn. The plant is an upright, foetid, annual herb that grows 50–150 cm tall and is typically found in Rajasthan, Gujarat, and other parts of India. Petiolate, stipulate, paripinnate leaf, 15-20 cm long. Yellow flowers in short



racemes; recurved, glabrous, compressed pods about 10–13 cm by 0.8 cm; dark olive green, ovoid, compressed seeds that shine and are firm and smooth.



A.



B.



C.



D.

Fig. C. occidentalis Linn. **A.** Whole plant morphology **B.** Root **C.** Leaf **D.** Seeds

Results:

Table No.1: - Organoleptic Characters of *Cassia occidentalis* (Kasmarda)

Plant name	Part of plant	Organoleptic characteristic			
		Colour	Odour	Taste	Touch
<i>Cassia occidentalis</i>	Seed	Whitish brown	Characteristics	Bitter sweet	Fibrous
<i>Cassia occidentalis</i>	Root	Brownish yellow	Bitter	Bitter	Fibrous

❖ Macroscopy

Leaf: -

The leaves are compound, pinnate, leaflets 3-5 pairs, opposite, unequal, glabrous above and pubescent beneath. The leaves possess a very foetid odor.

Stem: -

Stem erect, 1-2 m long, 0.5- 1.5 cm thick, branching at nodes spirally, young stem green in color and furrowed, while the mature stem is light brown to dark in color, branches many, ascending, flexuose, smooth, Internodes 2 to 4 cm long.

Methodology:

Collection and Identification: Samples of *Cassia tora* were collected from different locations in Eastern Rajasthan, ensuring representation of the plant's variability. Voucher specimens were prepared and authenticated by a botanist.

Morphological and Anatomical Study: The morphological features of *Cassia tora*, including leaves, flowers, and seeds, were examined using standard botanical techniques. Microscopic studies were conducted to understand the anatomical characteristics.

Phytochemical Analysis: Various phytochemical tests were employed to identify and quantify the secondary metabolites present in *Cassia tora*, such as alkaloids, flavonoids, tannins, saponins, and glycosides.

Pharmacological Evaluation: The plant extracts were subjected to pharmacological screening to assess potential bioactivities, including anti-inflammatory, antioxidant, and antimicrobial properties.

❖ Microscopy

Leaf: -

The leaf is dorsiventral with a flat lamina differentiated into palisade and spongy tissue. It is amphistomatic with ranunculaceous stomata on both abaxial and adaxial surfaces. The lateral leaf surface displayed horn like unicellular trichomes. T.S. of the midrib showed a bulging ventral surface with a slight depression on the dorsal surface. The dorsal and ventral surfaces were lined with rectangular shaped epidermal cells with elongated palisade cells lying orthogonally. The epidermal cells were covered by a thin cuticle. The collateral vascular bundle was chordate shaped.

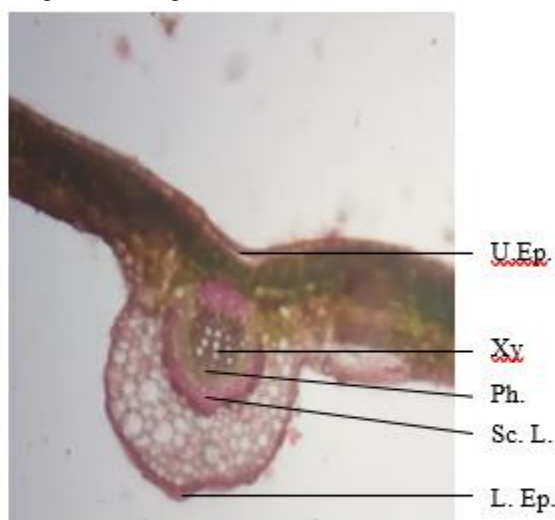
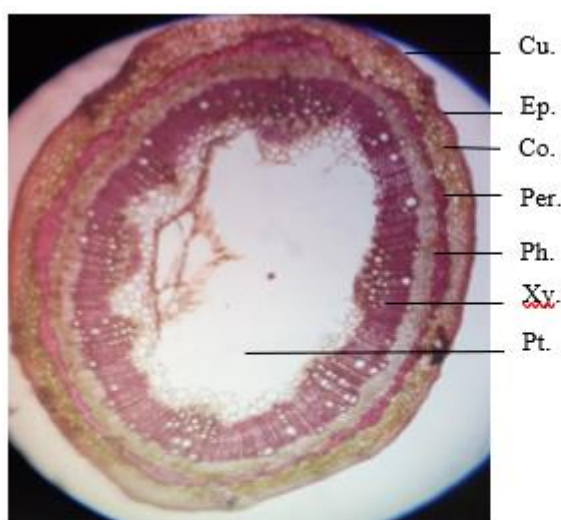


Stomata of paracytic type are present on both surfaces, but they are less abundant on the upper surface than the lower one. Chloroplasts are present in abundance in the mesophyll cells.

Stem: -

Transverse section of the stem shows a single layered epidermis composed of thin-walled cells covered externally by a thin cuticle. The cortex is composed of 9

to 12 layers of collenchymatous cells followed by 2 to 6 layers of parenchymatous cells. Endodermis is single layered, parenchymatous and found encircling the pericycle. Prismatic as well as rosette crystals of calcium oxalate are present in many cortical cells including endodermis, which shows the presence of only prismatic crystals. Each vascular bundle is capped by pericycle, which is represented in early stages by parenchymatous cells. Later many of these cells become thick walled and lignified and give rise to fibers and stone cells.



A.

B.

Cassia occidentalis (L) Link: (A) T.S. of stem, (B) T.S. of Leaf, Cu. (Cuticle), Ep.(Epidermis),

Co. (Cortex), Per. (Pericycle), Ph. (Phloem), Xy. (Xylem), Pt. (Pith)

U.Ep. (Upper epidermis), Sc.L. (Sclerenchymatous layer),

Phytochemical Composition: The phytochemical analysis indicated the presence of alkaloids, flavonoids, tannins, saponins, and glycosides. The concentrations of these compounds varied among different plant parts.

Table No.2: - Physicochemical Parameter of *Cassia occidentalis* (Kasmarda)

Parameters	<i>Cassia occidentalis</i> (Seed)	<i>Cassia occidentalis</i> (Root)
Foreign matter (w/w)	NA	NA
pH	6.0	8.0
Loss on Drying at 105°C (% c)	0.16±0.023	0.10±0.005
Ash value at 450°C (% w/w)	0.13±0.04	0.09±0.005



Acid insoluble ash value at 450 °C (% w/w)	0.10±0.005	0.07±0.005
Water extractive value (% w/w)	0.26±0.026	0.20±0.005
Methanol extractive value (% w/w)	0.18±0.011	0.17±0.005

Table No.3: - Qualitative Parameter of *Cassia occidentalis* (Kasmarda)

SR NO.	PARAMETER	<i>Cassia occidentalis</i> (Seed)		<i>Cassia occidentalis</i> (Root)	
		<i>Alcohol extract</i>	<i>Water extract</i>	<i>Alcohol extract</i>	<i>Water extract</i>
1	Alkaloids				
	Mayer's reagent	--	--	--	--
	Wagner's reagent	--	++	--	++
	Dragendorff Test	++	++	++	++
2	Flavonoids				
	Shinoda test	--	--	++	++
	Lead Acetate Test	++	++	++	++
3	Phenols				
	FeCl ₃ test	++	++	++	++
4	Protiens				
	Biuret Test	++	++	++	++
	Xanthoproteic Test	++	++	++	++
	Millon's Test	++	++	++	++
5	Glycosides				
	Borntrager's Test	--	--	++	++
6	Carbohydrates				



	Molisch Test	++	++	++	++
	Fehling's Test	++	++	++	++
	Benedict Test	++	++	++	++
7	Steroids				
	Salkowski test	--	--	++	++
8	Tannins				
	Lead Acetate test	++	++	++	++
	FeCl ₃ test	++	++	++	++
	Potassium dichromate Test	--	--	++	++
9	Saponin Foam Test	--	++	--	++
10	Fixed Oils Filter ppr test	--	--	--	--
11	Amino Acid				
	Ninhydrin Test	++	++	++	++

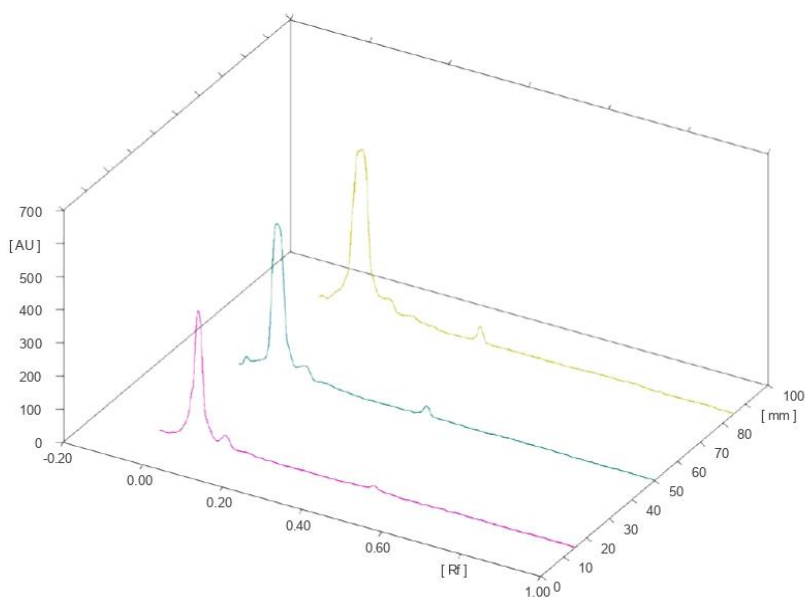
Table No.4: - TLC of *Cassia occidentalis* (Kasmarda)

Sr No	Plant Name	No. of Peaks and Rf	No. of peaks after Derivatisation
1.	<i>Cassia occidentalis</i> (Seed)	5 Peaks 0.07,0.13,0.58,0.84,0.98	7 Peaks 0.06,0.13,0.34,0.43,0.55,0.73,0.96
2.	<i>Cassia occidentalis</i> (Root)	6 Peaks 0.05,0.10,0.48,0.55,0.68,0.87	8 Peaks 0.05,0.11,0.44,0.49,0.57,0.69,0.87, 0.93

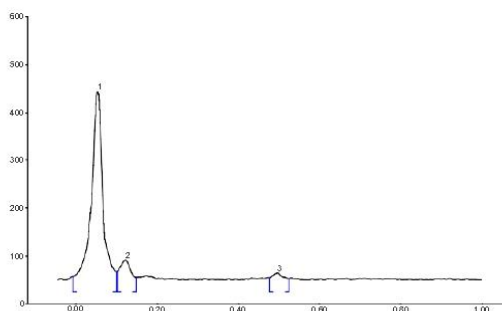
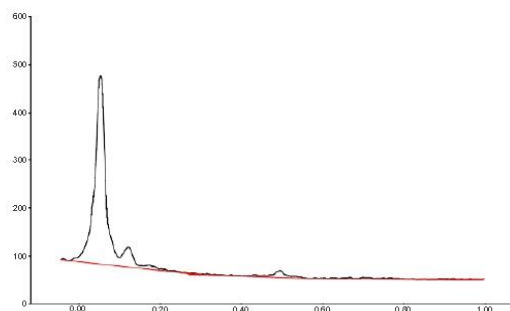


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All tracks at WavelengthSc4



Track 1, ID: Cassia Occidentalis

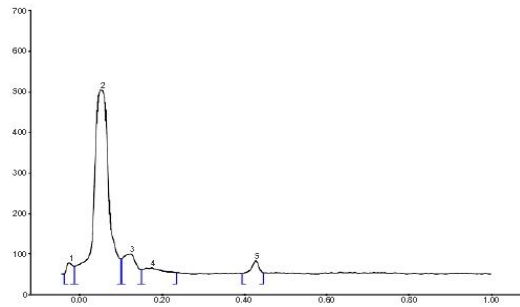
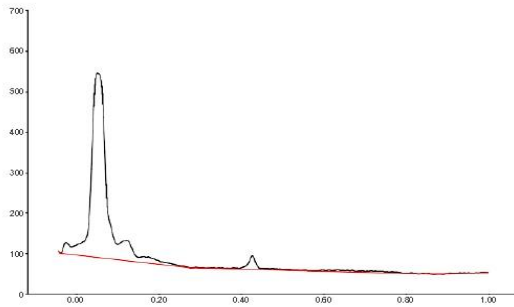


Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	-0.01	6.9	0.05	394.1	87.53	0.10	17.9	8314.8	88.46	unknown *
2	0.10	18.1	0.12	41.6	9.25	0.15	5.4	808.6	8.60	unknown *
3	0.48	5.0	0.50	14.5	3.22	0.52	3.1	275.7	2.93	unknown *



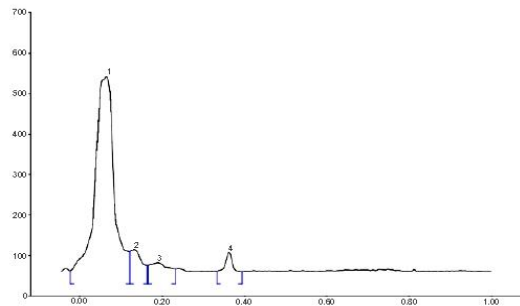
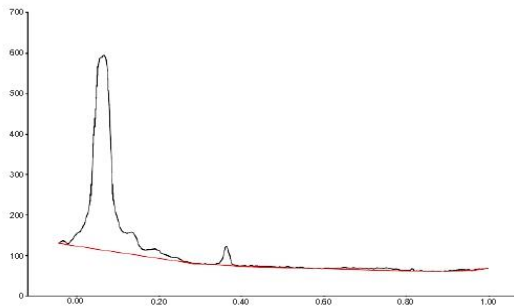
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Track 2, ID: Cassia Occidentalis



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.04	1.0	0.03	28.0	4.81	-0.01	18.3	325.6	2.22	unknown *
2	0.01	18.5	0.05	455.6	78.36	0.10	37.4	12138.2	82.63	unknown *
3	0.10	37.9	0.12	49.5	8.51	0.15	11.4	1189.3	8.10	unknown *
4	0.15	11.5	0.17	15.3	2.63	0.24	4.0	565.7	3.85	unknown *
5	0.39	1.4	0.43	33.1	5.69	0.45	3.1	470.4	3.20	unknown *

Track 3, ID: Cassia Occidentalis



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	-0.02	2.0	0.07	481.9	79.44	0.12	49.9	16698.8	87.59	unknown *
2	0.12	50.4	0.13	54.7	9.02	0.16	15.6	1080.8	5.67	unknown *
3	0.17	15.7	0.19	22.2	3.66	0.23	7.4	701.9	3.68	unknown *
4	0.33	1.5	0.36	47.9	7.89	0.39	0.1	583.2	3.06	unknown *

Evaluation results

Evaluation Sequence

Track	Track type	Vial	Sample ID
1	Sample	1	Cassia Occidentalis
2	Sample	1	Cassia Occidentalis
3	Sample	1	Cassia Occidentalis

Table of substances

Substance	Position Tracks		
	MD	mm	1 2 3



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Analysis Report

SOP document
Validated Design
Description :

Analysis D:\2024\March-2024\Cassia Occidentalis.cna
Created/used by S R Labs & Research Centre, Jaipur Thursday, March 07, 2024
5:29
:33 PM

Current user S R Labs & Research Centre, Jaipur

Stationary phase

Executed by S R Labs & Research Centre, Jaipur Thursday, March 07, 2024
3:01:18 PM
Plate size (X x Y) 10.0 x 10.0 cm
Material TLC Silica Gel 60 F254
Manufacturer merk
Batch
GLP code
Pre-washing No
Modification No

Definitions - Quantification

Executed by S R Labs & Research Centre, Jaipur Thursday, March 07, 2024 4:01:35 PM

Calibration parameters

Calibration mode Single level
Statistics mode CV
Evaluation mode Peak height

Samples

Sample ID: Cassia Occidentalis

Sample application - CAMAG Linomat 5

Instrument CAMAG Linomat 5 "Linomat5_192428" S/N 192428 (1.00.13)
Executed by S R Labs & Research Centre, Jaipur Thursday, March 07, 2024 4:04:02 PM

Linomat 5 application parameters

Spray gas : Inert gas
Sample solvent type : Methanol
Dosage speed : 150 nl/s
Predosage volume : 0.2 ul

Sequence

Syringe size: 100 µl
Number of tracks: 3
Application position Y: 8.0 mm
Band length : 6.0 mm

No.	Appl. position	Appl. volume	Vial #	Sample ID	Active
>1	15.0 mm	3.0 µl	1	Cassia Occidentalis	Yes
>2	50.0 mm	6.0 µl	1	Cassia Occidentalis	Yes
>3	85.0 mm	9.0 µl	1	Cassia Occidentalis	Yes

User : S R Labs & Research Centre, Jaipur
Thursday, March 07, 2024 5:29:35 PM

Approved :
Report ID : 07E8030705111D21

SN 1912W010, V1.4.8
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Detection - CAMAG TLC Scanner

Information

Application position 8.0 mm
Solvent front position 75.0 mm

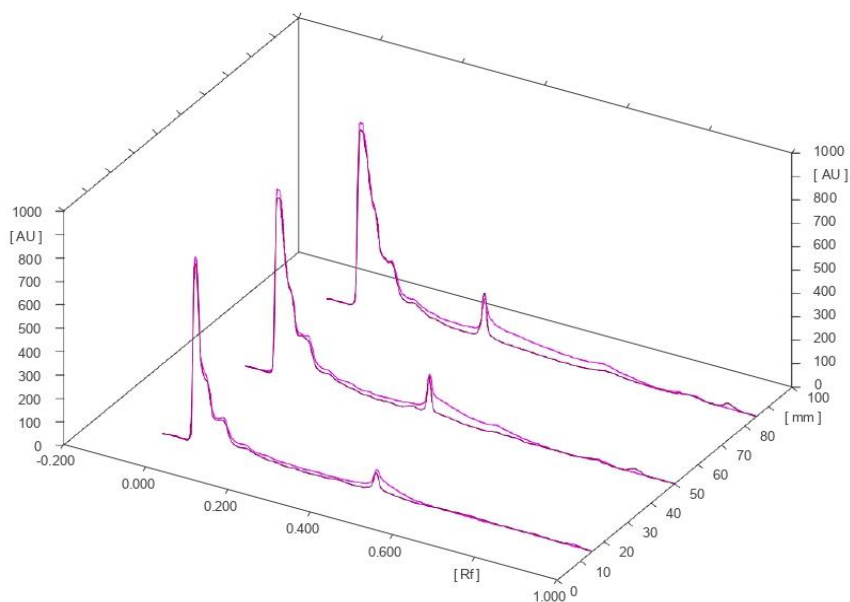
Instrument

CAMAG TLC Scanner "Scanner_192922" S/N 192922 (2.01.02)
Executed by S R Labs & Research Centre, Jaipur Thursday, March 07, 2024 4:35:49 PM3
Number of tracks 15.0 mm
Position of first track X 35.0 mm
Distance between tracks 5.0 mm
Scan start pos. Y 75.0 mm
Scan end pos. Y 4.00 x 0.30 mm, Micro
Slit dimensions Light
Optimize optical system 20 mm/s
Scanning speed: 100 µm/step
Data resolution:

Integration

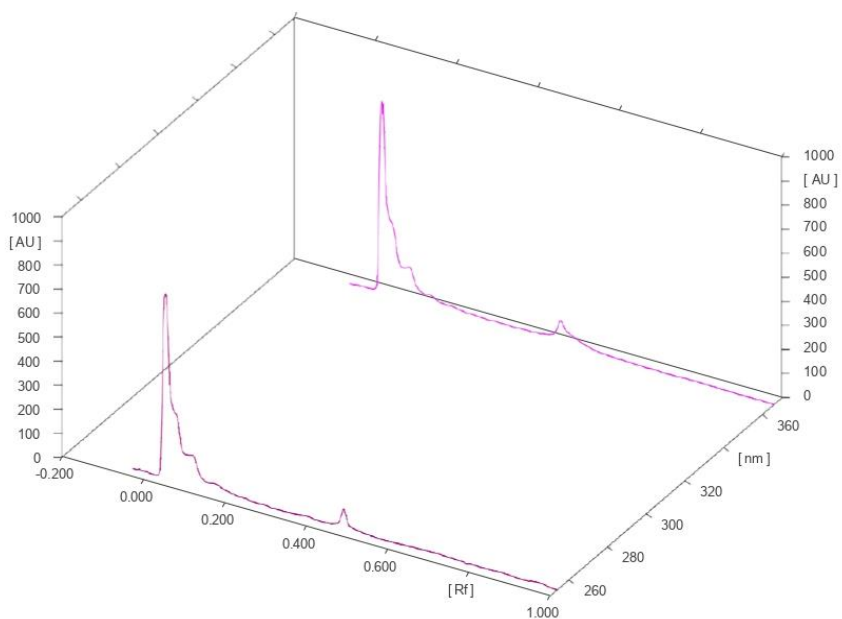
Properties

Data filtering Savitsky-Golay 7
Baseline correction Lowest Slope
Peak threshold min. slope 5
Peak threshold min. height 10 AU
Peak threshold min. area 50
Peak threshold max. height 990 AU
Track start position 5.0 mm
Track end position 75.0 mm
Automatic
Display scaling All tracks at all measured wavelengths

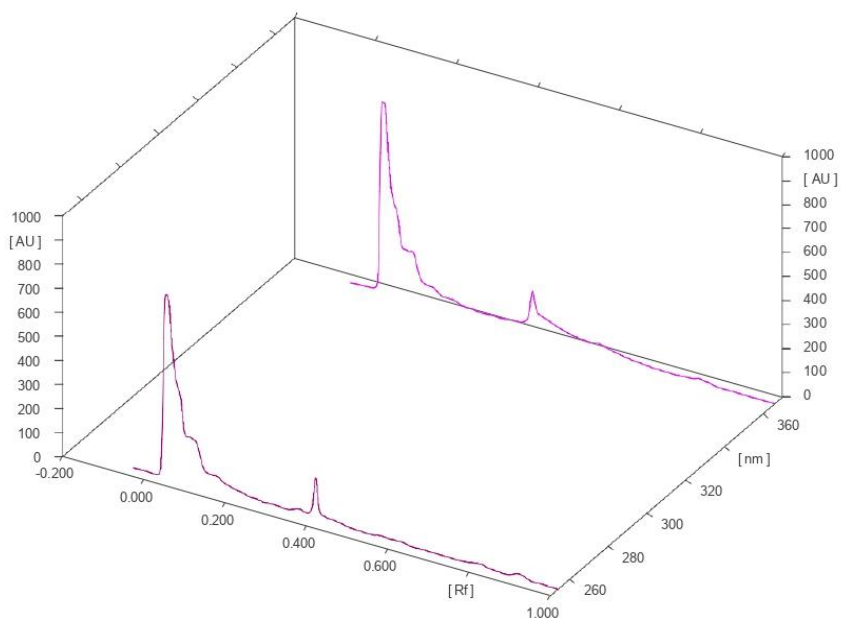




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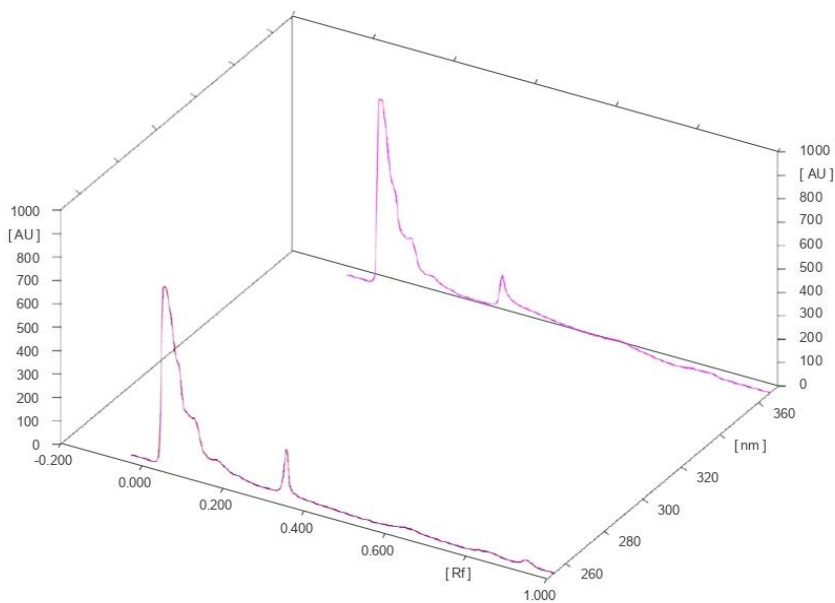
Track MWLTrackSc4 at all measured wavelengths





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Track MWLTrackSc4 at all measured wavelengths



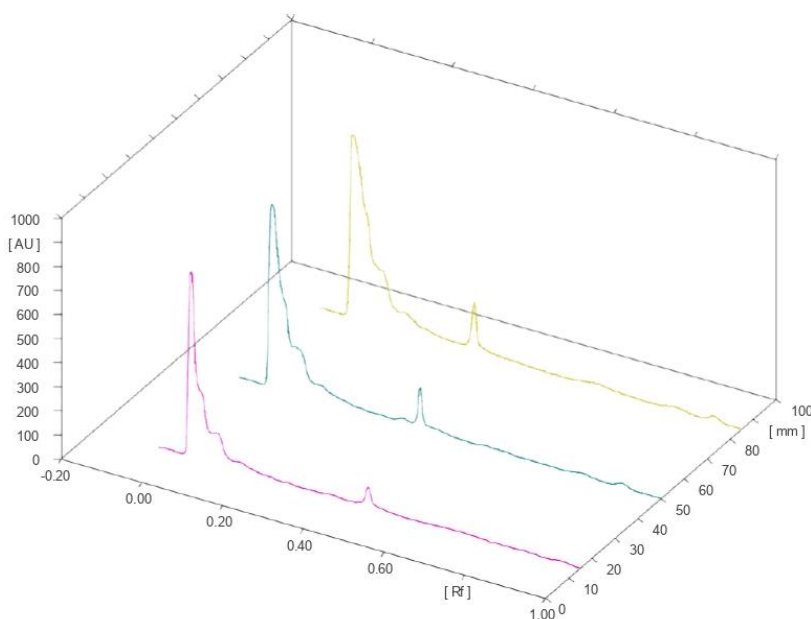
Measurement Table

Wavelength	254
Lamp	D2 & W
Measurement Type	Remission
Measurement Mode	Absorption
Optical filter	Second order
Detector mode	Automatic
PM high voltage	340 V

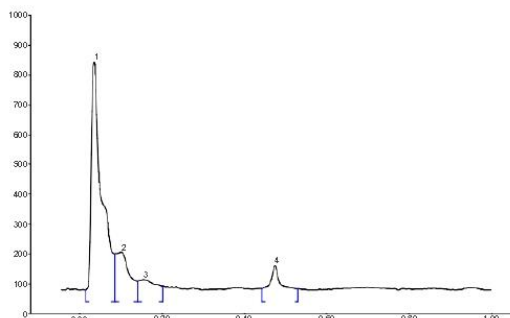
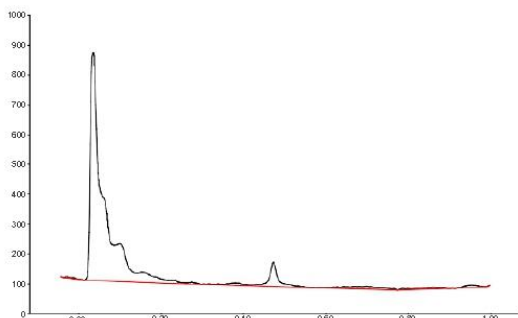


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All tracks at WavelengthSc4



Track 1, ID: Cassia Occidentalis

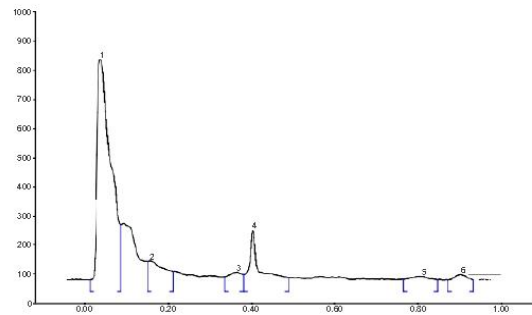
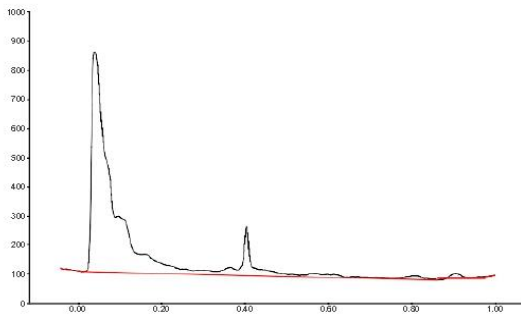


Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.01	0.6	0.04	764.7	75.93	0.09	121.2	14574.2	73.28	unknown *
2	0.09	121.2	0.10	126.1	12.52	0.14	29.6	2999.5	15.08	unknown *
3	0.14	29.9	0.16	34.4	3.42	0.20	12.7	1025.5	5.16	unknown *
4	0.44	4.8	0.47	82.0	8.14	0.53	4.0	1288.7	6.48	unknown *



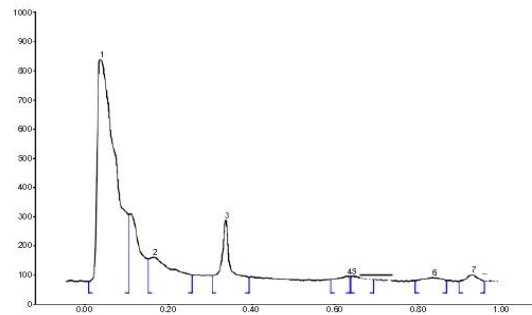
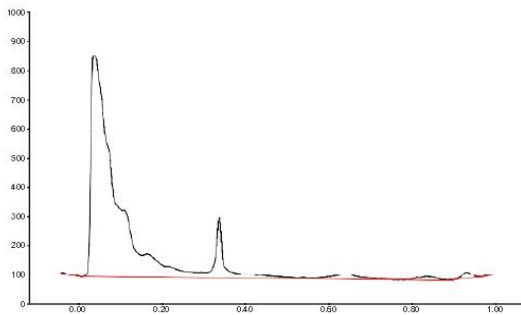
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Track 2, ID: Cassia Occidentalis



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.01	0.9	0.04	757.1	72.09	0.09	192.2	19428.2	76.80	unknown *
2	0.15	63.7	0.16	64.9	6.18	0.21	28.3	1938.6	7.66	unknown *
3	0.34	10.4	0.37	25.8	2.46	0.38	17.9	606.7	2.40	unknown *
4	0.38	18.0	0.40	172.5	16.42	0.49	7.4	2560.8	10.12	unknown *
5	0.77	2.8	0.81	12.2	1.16	0.85	1.4	390.5	1.54	unknown *
6	0.87	0.7	0.90	17.8	1.69	0.93	0.3	372.7	1.47	unknown *

Track 3, ID: Cassia Occidentalis



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.01	0.1	0.04	758.4	67.87	0.11	228.9	25238.1	75.46	unknown *
2	0.15	77.2	0.16	82.1	7.34	0.26	21.8	3524.6	10.54	unknown *
3	0.31	19.3	0.34	208.6	18.66	0.39	14.3	3034.2	9.07	unknown *
4	0.59	6.2	0.63	17.3	1.55	0.64	15.5	381.9	1.14	unknown *
5	0.64	15.7	0.64	17.2	1.54	0.70	5.9	425.8	1.27	unknown *
6	0.80	1.7	0.84	12.7	1.13	0.87	3.0	424.2	1.27	unknown *
7	0.90	0.3	0.93	21.3	1.90	0.96	1.4	416.7	1.25	unknown *

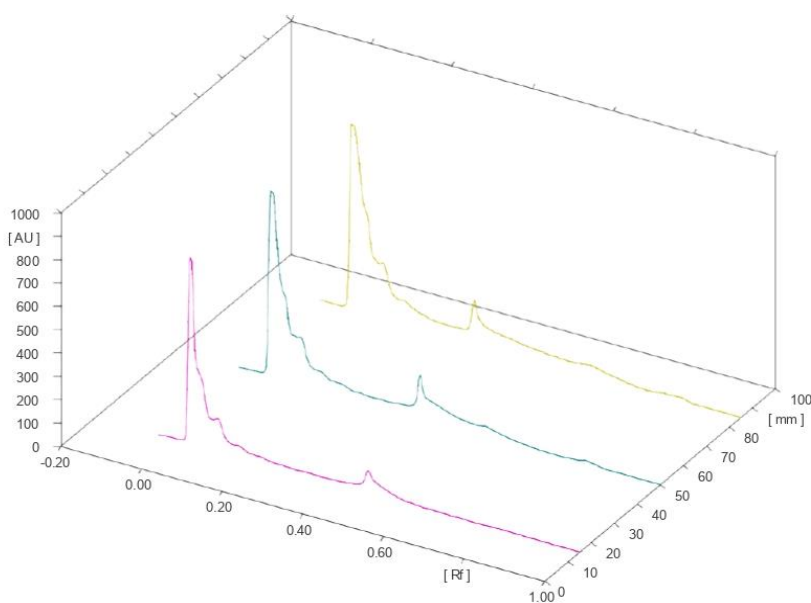
Measurement Table

Wavelength	366
Lamp	D2 & W
Measurement Type	Remission
Measurement Mode	Absorption
Optical filter	Second order
Detector mode	Automatic
PM high voltage	340 V

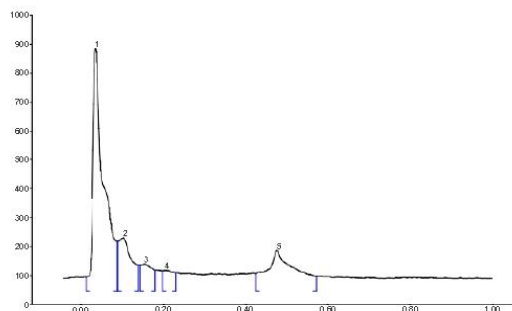
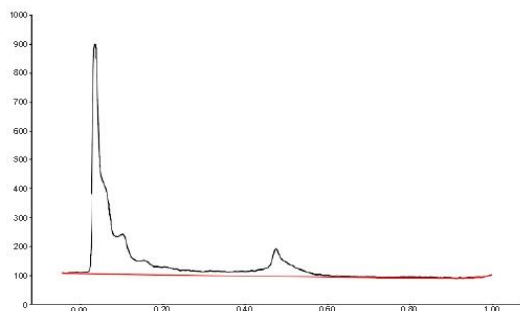


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All tracks at WavelengthSc4



Track 1, ID: Cassia Occidentalis

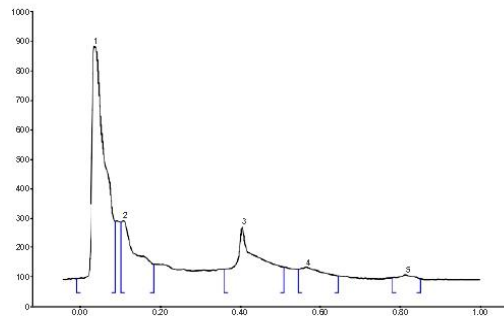
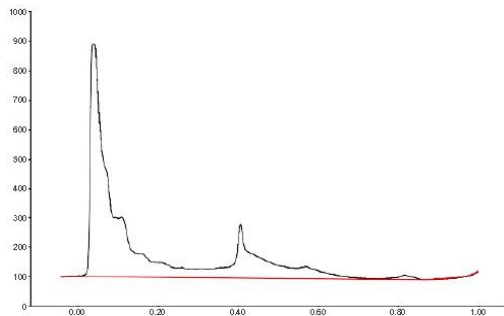


Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.01	4.9	0.03	795.0	71.84	0.09	129.0	15509.6	64.70	unknown *
2	0.09	129.1	0.10	138.9	12.55	0.14	45.7	3218.7	13.43	unknown *
3	0.14	45.9	0.15	49.0	4.43	0.18	28.2	1072.0	4.47	unknown *
4	0.20	25.7	0.20	27.8	2.51	0.23	19.6	537.5	2.24	unknown *
5	0.42	17.1	0.48	95.9	8.66	0.57	8.5	3633.7	15.16	unknown *



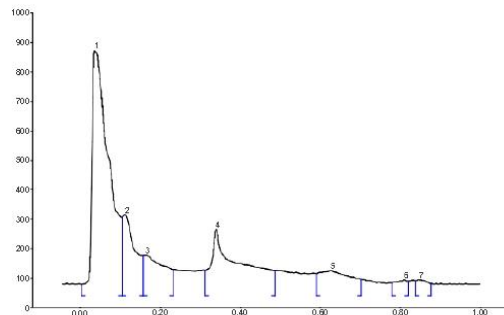
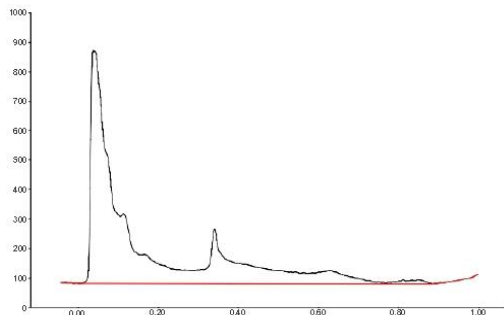
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Track 2, ID: Cassia Occidentalis



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	-0.01	2.9	0.03	792.5	64.14	0.09	201.4	20210.7	56.73	unknown *
2	0.10	198.8	0.11	203.5	16.47	0.18	52.8	5968.3	16.75	unknown *
3	0.36	35.7	0.40	181.2	14.67	0.51	42.1	7061.3	19.82	unknown *
4	0.55	35.9	0.57	42.5	3.44	0.65	12.3	1922.0	5.40	unknown *
5	0.78	6.3	0.81	15.8	1.28	0.85	3.4	462.8	1.30	unknown *

Track 3, ID: Cassia Occidentalis



Peak	Start Rf	Start Height	Max Rf	Max Height	Max %	End Rf	End Height	Area	Area %	Assigned substance
1	0.00	0.3	0.04	792.1	57.18	0.10	226.7	25109.6	54.59	unknown *
2	0.11	227.8	0.11	235.4	16.99	0.16	97.2	5403.4	11.75	unknown *
3	0.16	97.3	0.16	98.6	7.12	0.23	49.0	3695.0	8.03	unknown *
4	0.31	46.8	0.34	185.5	13.39	0.49	45.5	8730.0	18.98	unknown *
5	0.59	36.2	0.63	44.9	3.24	0.70	16.5	2525.3	5.49	unknown *
6	0.78	4.6	0.81	14.7	1.06	0.82	10.4	265.9	0.58	unknown *
7	0.84	11.8	0.85	14.1	1.02	0.88	2.5	265.2	0.58	unknown *

Evaluation results

Evaluation Sequence

Track	Track type	Vial	Sample ID
1	Sample	1	Cassia Occidentalis
2	Sample	1	Cassia Occidentalis
3	Sample	1	Cassia Occidentalis



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Table of substances

Substance	Position Tracks		
	MD	mm	1 2 3

Results per track

winCATS summary report

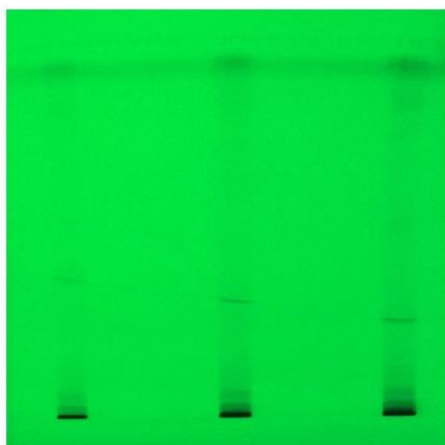
Calibration results per Analysis

No results can be calculated due to the following error(s):
No substances assigned

Visualizer Document - Plate state Developed

Image information - 254 nm - Image1

Illumination instrument	CAMAG Visualizer : 192963 (Visualizer_192963)
Digital camera type : snr & Lens	DXA252 : 634063612, Computar, 16 mm, f4.0
Created by : on	S R Labs & Research Centre, Jaipur : Thursday, March 07, 2024:31:55 PM
Resolution	Full
Plate border size	-2 mm
Automatic capture	Off
Save mode	Lossy (JPG)
Exposure mode	Automatic, digital level: 80 %, Band
Capture settings:	
Image size:	952 Pxl x 952 Pxl (0.10 mm/Pxl)
Exposure :	112.93 ms gain: 1.00
White balance	R: 1.40, G: 1.00, B: 1.20
Illumination type / correction type :	254 nm remission : Default correction
Display settings:	
White balance:	R: 1.00 G: 1.00 B: 1.00
Contrast enhancement:	1.00
Brightness:	0.00
Accentuation:	0.80
Color saturation:	1.30
Blank plate compensation :	N/A

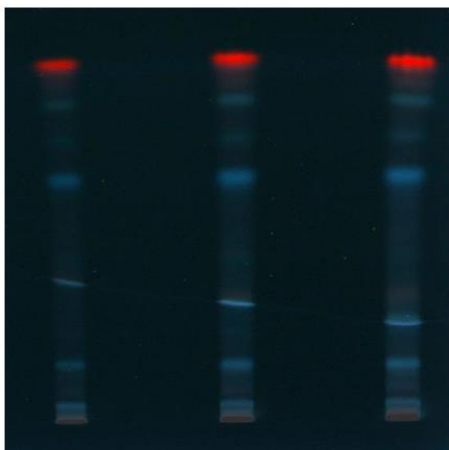




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Image information - 366 nm - Image1

Illumination instrument	CAMAG Visualizer : 192963 (Visualizer_192963)
Digital camera type : snr & Lens	DXA252 : 634063612, Computar, 16 mm, f4.0
Created by : on	S R Labs & Research Centre, Jaipur : Thursday, March 07, 2024:32:06 PM
Resolution	Full
Plate border size	-2 mm
Automatic capture	Off
Save mode	Lossy (JPG)
Exposure mode	Automatic, digital level: 85 %, Band
Capture settings:	
Image size:	952 Pxl x 952 Pxl (0.10 mm/Pxl)
Exposure :	761.07 ms gain: 1.00
White balance	R: 1.40, G: 1.00, B: 1.20
Illumination type / correction type :	366 nm remission : Default correction
Display settings:	
White balance:	R: 1.00 G: 1.00 B: 1.00
Contrast enhancement:	1.00
Brightness:	0.00
Accentuation:	0.80
Color saturation:	1.30
Blank plate compensation :	N/A

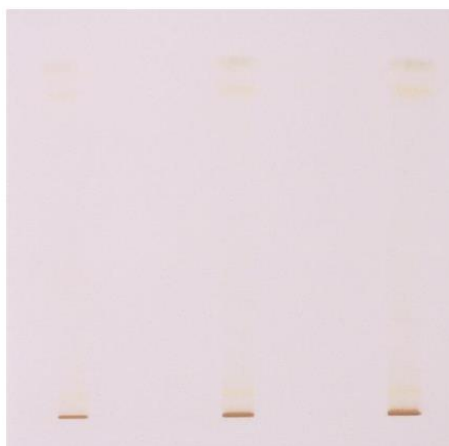




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Image information - White R - Image1

Illumination instrument	CAMAG Visualizer : 192963 (Visualizer_192963)
Digital camera type : snr & Lens	DXA252 : 634063612, Computar, 16 mm, f4.0
Created by : on	S R Labs & Research Centre, Jaipur : Thursday, March 07, 2024:32:16 PM
Resolution	Full
Plate border size	-2 mm
Automatic capture	Off
Save mode	Lossy (JPG)
Exposure mode	Automatic, digital level: 85 %, Area
Capture settings:	
Image size:	952 Pxl x 952 Pxl (0.10 mm/Pxl)
Exposure :	46.92 ms gain: 1.00
White balance	R: 1.45, G: 1.00, B: 2.15
Illumination type / correction type :	White remission : Default correction
Display settings:	
White balance:	R: 1.00 G: 1.00 B: 1.00
Contrast enhancement:	1.00
Brightness:	0.00
Accentuation:	0.80
Color saturation:	1.30
Blank plate compensation :	N/A

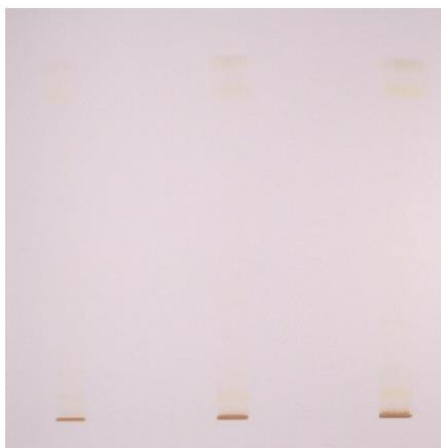




winCATS Planar Chromatography Manager

Image information - White RT - Image1

Illumination instrument	CAMAG Visualizer : 192963 (Visualizer_192963)
Digital camera type : snr & Lens	DXA252 : 634063612, Computar, 16 mm, f4.0
Created by : on	S R Labs & Research Centre, Jaipur : Thursday, March 07, 2024:32:25 PM
Resolution	Full
Plate border size	-2 mm
Automatic capture	Off
Save mode	Lossy (JPG)
Exposure mode	Automatic, digital level: 85 %, Area
Capture settings:	
Image size:	952 Pxl x 952 Pxl (0.10 mm/Pxl)
Exposure :	44.39 ms gain: 1.00
White balance	R: 1.45, G: 1.00, B: 2.15
Illumination type / correction type :	None :
Display settings:	
White balance:	R: 1.00 G: 1.00 B: 1.00
Contrast enhancement:	1.00
Brightness:	0.00
Accentuation:	0.80
Color saturation:	1.30
Blank plate compensation :	N/A

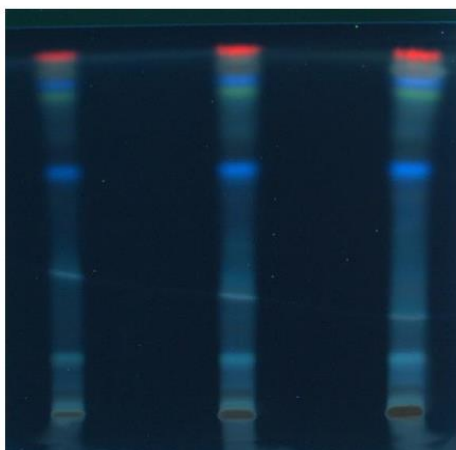




winCATS Planar Chromatography Manager

Image information - 366 nm - Image1

Illumination instrument	CAMAG Visualizer : 192963 (Visualizer_192963)
Digital camera type : snr & Lens	DXA252 : 634063612, Computar, 16 mm, f4.0
Created by : on	S R Labs & Research Centre, Jaipur : Thursday, March 07, 2024 5:28:36 PM
Resolution	Full
Plate border size	-2 mm
Automatic capture	Off
Save mode	Lossy (JPG)
Exposure mode	Automatic, digital level: 85 %, Band
Capture settings:	
Image size:	952 Pxl x 952 Pxl (0.10 mm/Pxl)
Exposure :	1617.13 ms gain: 1.00
White balance	R: 1.40, G: 1.00, B: 1.20
Illumination type / correction type :	366 nm remission : Default correction
Display settings:	
White balance:	R: 1.00 G: 1.00 B: 1.00
Contrast enhancement:	1.00
Brightness:	0.00
Accentuation:	0.80
Color saturation:	1.30
Blank plate compensation :	N/A

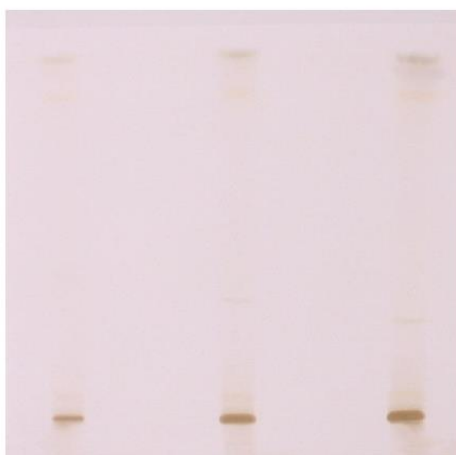




winCATS Planar Chromatography Manager

Image information - White R - Image1

Illumination instrument	CAMAG Visualizer : 192963 (Visualizer_192963)
Digital camera type : snr & Lens	DXA252 : 634063612, Computar, 16 mm, f4.0
Created by : on	S R Labs & Research Centre, Jaipur : Thursday, March 07, 2024 5:28:46 PM
Resolution	Full
Plate border size	-2 mm
Automatic capture	Off
Save mode	Lossy (JPG)
Exposure mode	Automatic, digital level: 85 %, Area
Capture settings:	
Image size:	952 Pxl x 952 Pxl (0.10 mm/Pxl)
Exposure :	52.67 ms gain: 1.00
White balance	R: 1.45, G: 1.00, B: 2.15
Illumination type / correction type :	White remission : Default correction
Display settings:	
White balance:	R: 1.00 G: 1.00 B: 1.00
Contrast enhancement:	1.00
Brightness:	0.00
Accentuation:	0.80
Color saturation:	1.30
Blank plate compensation :	N/A





winCATS Planar Chromatography Manager

Image information - White RT - Image1

Illumination instrument	CAMAG Visualizer : 192963 (Visualizer_192963)
Digital camera type : snr & Lens	DXA252 : 634063612, Computar, 16 mm, f4.0
Created by : on	S R Labs & Research Centre, Jaipur : Thursday, March 07, 2024:28:59 PM
Resolution	Full
Plate border size	-2 mm
Automatic capture	Off
Save mode	Lossy (JPG)
Exposure mode	Automatic, digital level: 85 %, Area
Capture settings:	
Image size:	952 Pxl x 952 Pxl (0.10 mm/Pxl)
Exposure :	48.07 ms gain: 1.00
White balance	R: 1.45, G: 1.00, B: 2.15
Illumination type / correction type :	None :
Display settings:	
White balance:	R: 1.00 G: 1.00 B: 1.00
Contrast enhancement:	1.00
Brightness:	0.00
Accentuation:	0.80
Color saturation:	1.30
Blank plate compensation :	N/A





Pharmacological Activities: Preliminary pharmacological screening demonstrated significant anti-fungal, antibacterial, and antimalarial, antiinflammatory, Hepatoprotective activities in *Cassia occidentalis* extracts.

Discussion: The phytochemical composition and pharmacological activities observed in *Cassia occidentalis* support its traditional use in Eastern Rajasthan for various medicinal purposes. The presence of bioactive compounds suggests potential applications in the pharmaceutical industry.

Conclusion: This study provides valuable insights into the phytochemical and pharmacognostical aspects of *Cassia occidentalis* in Eastern Rajasthan. Two major compounds were observed in the HPTLC analysis. The documented information can serve as a foundation for further research, validating the traditional uses and exploring the therapeutic potential of this plant.

Acknowledgments: The authors express gratitude to Maharaja Surajmal Brij University, Bharatpur for their support in conducting this research.