

## AN ANALYTICAL EVALUATION OF JAYAPALA BEEJA [*CROTON TIGLIUM* LINN.] W.S.R. TO ITS SHODHANA IN DIFFERENT MEDIA

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### ABSTRACT

According to Acharya Charaka even an acute poison can become an excellent drug if it is properly administered, and similarly even a drug, if not properly administered, becomes an acute poison. To retain the therapeutic properties the toxic and harmful part of the drugs can be removed by employing various purification processes (Shodhana). Jayapala (*Croton tiglium* linn.) grows all over India. The seeds and the oil extracted from the seeds are poisonous. The active principle is **crotonin**, **croton oil** and **crotonoside**. These are similar to poisoning by **ricin**. Hence the purification process is needed. The main objective is analytical study of Jayapalabeeja before and after Shodhana by cow

milk and juice of cow dung. Total three samples is taken for this study. After the shodhana procedure and analytical studies the different data shows that Jayapalabeeja Shodhna by juice of cow dung sample got significant less toxic result when compared with other two i.e Ashodhita sample and Shodhita by cow milk sample.

**KEYWORDS:** Poison, Jayapalabeeja, Shodhana, Analytical study, Cow milk, Juice of cow dung.

### INTRODUCTION

According to Agadatantravisha is classified into three<sup>[1]</sup>-viz, Sthavara, Jangama and Kritrima. The first two considered to be natural and later being artificial, one Jangamvisha includes all kinds of animate poisoning etc. These poisonous creatures are supposed to carry the venom in sixteen sites<sup>[2]</sup> such as teeth, breath, urine etc. Sthavaravisha includes all vegetable poisons and minerals. seats of sthavaravisha are ten in number<sup>[3]</sup> such as leaf, flower, bark etc. The

third one, Kritrima is not a natural poison, include the signs and symptoms of accidental and purposeful ingestion of poisons like, garavisha and Agadatantra also includes dushivisha concept.

In Ayurvedaacharya Charaka has mentioned that even poison in small quantity acts as a nectar,<sup>[4]</sup> and also mentioned that even an acute poison can become an excellent drug if it is properly administered and similarly even a drug, if not properly administered, becomes an acute poison.<sup>[5]</sup>

*Croton tiglium* Linn. is an irritant poison. to retain the therapeutic properties the toxic and harmful part of the drugs can be removed by employing various purification processes (shodhana).<sup>[6]</sup> Jayapala grows all over india. The seeds and the oil extracted from the seeds are poisons. The active principle is crotin, croton oil and crotonoside. These are similar to poisoning by ricin. hence the purification process is needed.

In Yogaratnakara, references regarding the shodhana of Jayapala in different media, Gomayasyodaka (juice of cow dung) and Godugdha (cow milk) in mentioned<sup>[7]</sup> this present study carried out to ascertain “An analytical evaluation of Jayapalabeeja [*Croton tiglium* Linn.] W.S.R. to its shodhana in different media.”

### OBJECTIVES OF THE STUDY

- a) An analytical and Pharmacognostical study of Jayapalabeeja before shodhana.
- b) An analytical study and Pharmacognostical of Jayapalabeeja after shodhana in different media [juice of cow dung and cow milk]
- c) A comparative an analytical and Pharmacognostical study of Jayapalabeeja before and after shodhana.

### METHODOLOGY

The study was designed under three headings.

- Pharmaceutical study
- Analytical study.
- Pharmaceutical Procedure - 1:

Table No. 1: Brief details of the procedure.

The procedure started at 10.00 AM on 06.07.2015	Quantity of milk added at this stage is 500 ml.	
At 10.45 AM	100 ml of milk was added	Boiling was continued on mild flame maintaining temperature in between 105 - 108°C.
At 11.15 AM	100 ml of milk was added	
At 11.45 AM	150 ml of milk was added	
At 12.30 PM	150 ml of milk was added	

## Pharmaceutical Procedure 2

Table No. 2: Brief details of the procedure.

The procedure started at 9.30 AM on 06.07.2015	Quantity of potable Juice of cow dung added at this stage is 500 ml.	
At 10.00 AM	250 ml of juice of cow dung was added	Boiling was continued on mild flame maintaining temperature in between 105 - 108°C.
At 10.45 AM	250 ml of juice of cow dung was added	
At 11.15 AM	250 ml of juice of cow dung was added	
At 12.15 PM	250 ml of juice of cow dung was added	



Fig: Shodhana by cow dung and cow milk.

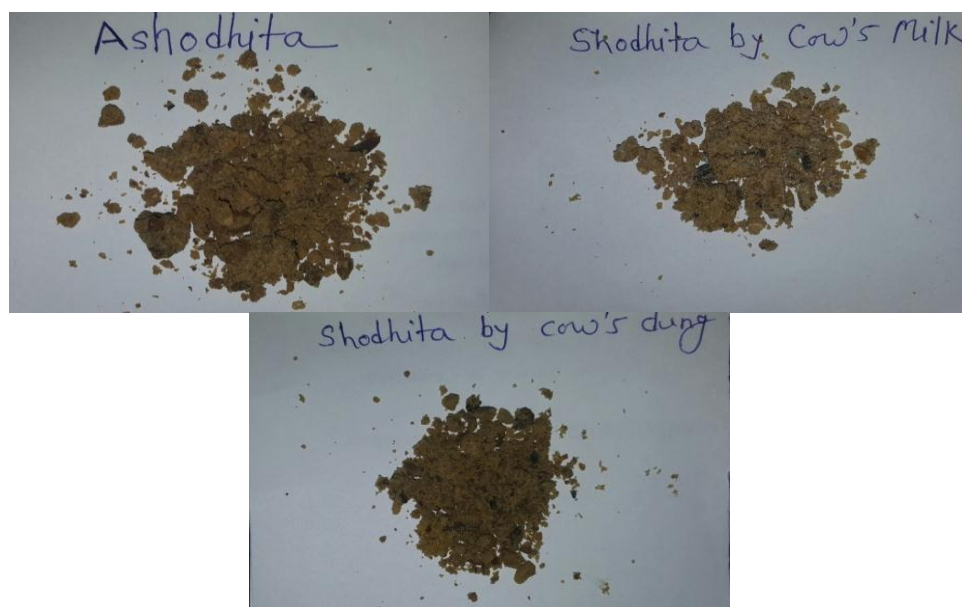


FIG- Ashodhita, shodhita by cow's milk and shodhita by cow's dung sample.

### Organoleptic Study

The macroscopic characters of the drug were observed for colour, size, shape, odour, taste, texture.

### Analytical Study

1) Physico chemical study of *Croton tiglium* Linn.

- a) Foreign matter percentage
- b) Total ash
- c) Acid insoluble ash
- d) Water soluble ash
- e) Moisture contents

Phytochemical study of *Croton tiglium* Linn. which includes following:

- a) Qualitative analysis
- b) Chromatography

### OBSERVATION AND RESULTS

**Table no. 3: Brief results of *Shodhanain* cow milk.**

	<b>Batch-1</b>
Weight of dried ashudha seeds	100 gm
Weight of seeds after <i>swedana</i>	185 gm
Weight of seeds after washing in hot water	170 gm
Weight of seeds after complete drying	85 gm
Duration of boiling	180 min
Milk needed for 3 hrs boiling	1000 ml

**Table No. 4: Brief results of *Shodhana* in cow dung.**

	<b>Batch-2</b>
Weight of dried ashudha seeds	100 gm
Weight of seeds after <i>swedana</i>	120gm
Weight of seeds after complete drying	80 gm

### 1) MACROSCOPIC STUDY

Fine, granular powder, dull-red or madder-red coloured, floating on water.

**Table No. 5: Showing organoleptic features of different samples of Jayapalabeeja.**

Character	Ashodhita	Shodhita by cow milk	Shodhita by cow dung
Physical appearance	Coarse Powder	Coarse Powder	Coarse Powder
Colour	Greyish brown	Light milky brown	Dark brown
Odour	Characteristic	Characteristic	Characteristic
Taste	Katu	Katu	Katu
Touch	Hard	Soft	Soft

**Physicochemical Analysis****Identity, Purity And Strength<sup>[8]</sup>**

Foreign matter	- Not more than 2%
Total ash	- Not more than 3%
Acid insoluble ash	-Not more than 0.5%
Alcohol soluble extractive	-Not less than 15%
Water soluble extractive	- Not less than 7%

**Table No.6: Showing comparative physicochemical analysis of different samples of Jayapalabeeja.**

Parameter	Ashodhita	Shodhita by cow milk	Shodhita by cow dung
Total ash	1.38%	1.17%	1.19%
Acid insoluble ash	0.06%	0.05%	0.05%
Water soluble ash	0.80%	0.86%	0.84%
Alcohol soluble extractive	20.00%	22.40%	23.50%
Water soluble extractive	9.38%	12.64%	14.73%
Chloroform soluble extractive	14.20%	28.80%	11.60%
Acetone soluble extractive	33.40%	18.40%	16.40%
Moisture content	2.11%	3.25%	1.27%
Foreign matter	Nil	Nil	Nil
Total fatty content	55.42%	18.55%	16.22%

**OBSERVATION**

As per API standards, ash value should not be more than 3%. Ash value for all samples were under the prescribed limit but in ashodhita sample ash value is more than other both samples. It indicates presence of more inorganic compound in ashodhita sample compare then other both samples. In Ashodhita sample total fatty and oil content is higher than other samples. It give idea about the presence of toxicity in the samples.

All other values were under the normal values.

**Table No. 7: Physical characters of Aqueous of different samples of Jayapalabeeja.**

Characters	Colour	Odour	Solubility
Ashodhita	Brown	Characteristic	Less
Shodhita by cow milk	Whitish brown	Characteristic	Less
Shodhita by cow dung	Brown	Characteristic	Less

**Table No. 8: Physical characters of Alcohol extraction of different samples of Jayapalabeeja.**

Characters	Colour	Odour	Consistency
Ashodhita	Light brown	Characteristic	Clear
Shodhita by cow milk	brown	Characteristic	Clear
Shodhita by cow dung	Dark brown	Characteristic	Clear

**Table No. 9: Physical characters of Chloroform extraction of different samples of Jayapalabeeja.**

Characters	Colour	Odour	Consistency
Ashodhita	Whitish brown	Characteristic	Clear
Shodhita by cow Milk	brown	Characteristic	Clear
Shodhita by cow dung	brown	Characteristic	Clear

**Table No. 10: Physical characters of Acetone extraction of different samples of Jayapalabeeja.**

Characters	Colour	Odour	Consistency
Ashodhita	Whitish brown	Characteristic	Clear
Shodhita by cow Milk	brown	Characteristic	Clear
Shodhita by cow dung	Light brown	Characteristic	Clear

**Table No. 11: Physical characters of Petroleumether extraction of different samples of Jayapalabeeja.**

Characters	Colour	Odour	Consistency
Ashodhita	brown	Characteristic	Clear
Shodhita by cow milk	Light brown	Characteristic	Clear
Shodhita by cow dung	brown	Characteristic	Clear

**HIGH PERFORMANCE THIN LAYER CHROMATOGRAPHY**

**Sample Details:** *Ashodhita, Shodhna by cow dung, Shodhna by milk.*

**Hptlc Conditions:** One gram of powdered samples were dissolved in 10 ml ethanol and kept for cold percolation for 24 hour and filtered. Five and ten $\mu$ l of the above samples of were applied.

**Stationary Phase:** Pre-coated silica gel F254 on aluminum plates to a band width of 7 mm using Linomat 5 TLC applicator.

**Mobile Phase:** Toluene: Ethyl acetate (7:2).

**Derivatisation:** vanillin sulphuric acid reagent and scanned under UV 254 nm and 366 nm.

**Data Recorded:** R<sub>f</sub>, colour of the spots and densitometric scan.

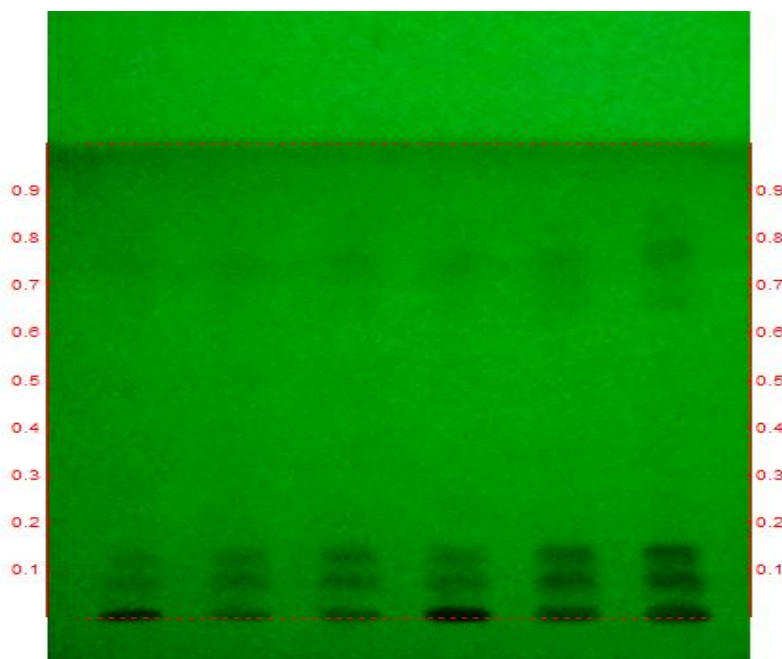


PHOTO NO. 10. HPTLC showing of Alcohol extract of *Ashodhita*, *Shodhana* by cow dung, *Shodhnaby* milk at 254 nm.

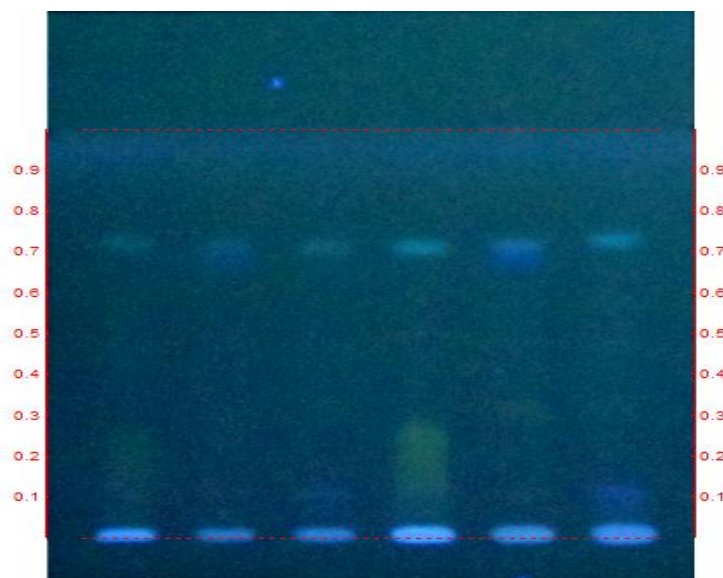


PHOTO NO. HPTLC showing of Alcohol extract of *Ashodhita*, *Shodhana* by cow dung, *Shodhnaby* milk at 366 nm.

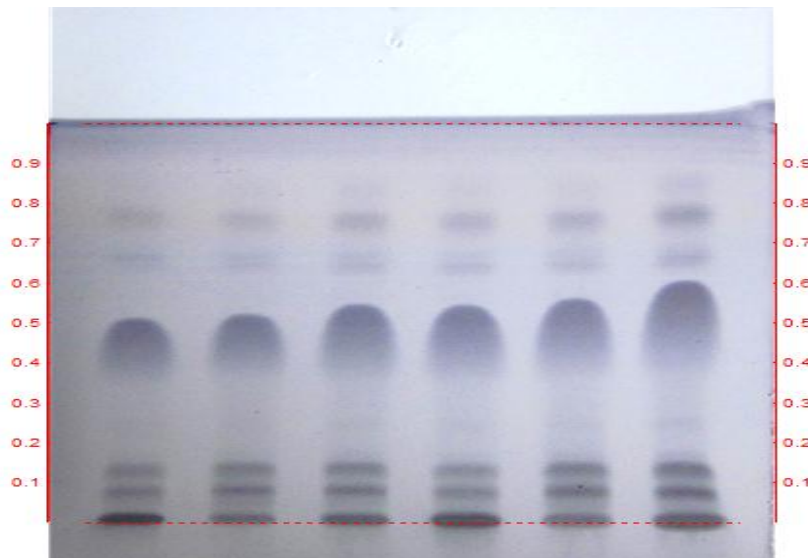
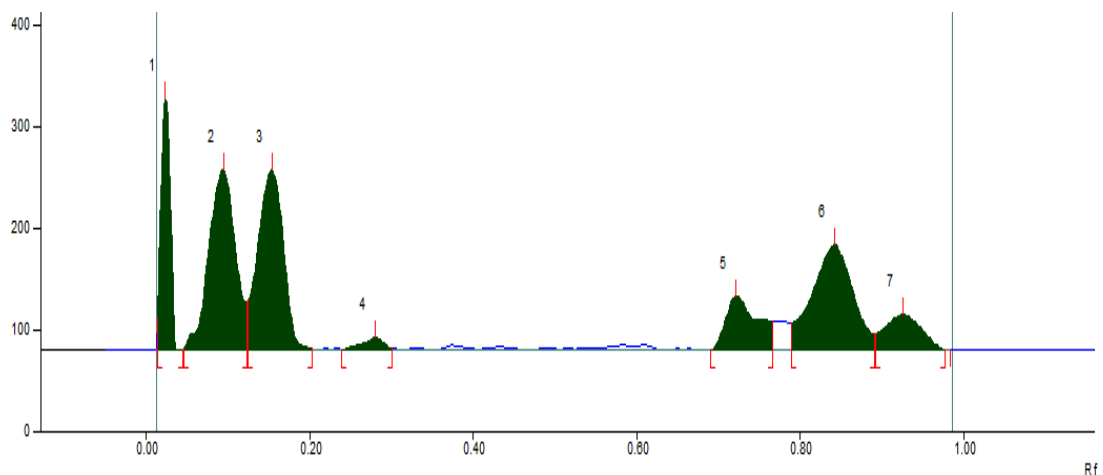


PHOTO NO. HPTLC showing of Alcohol extract of *Ashodhita*, *Shodhanaby* cow dung, *Shodhnaby* milk After derivatization.

Track 1- *Ashodhita*– 5  $\mu$ l; Track 2- *Shodhna* by cow dung– 5  $\mu$ l; Track 3- *Shodhana* by milk– 5  $\mu$ l; Track 4- *Ashodhita*– 10  $\mu$ l; Track 5- *Shodhna* by cow dung– 10  $\mu$ l; Track 6- *Shodhana* by milk– 10  $\mu$ l

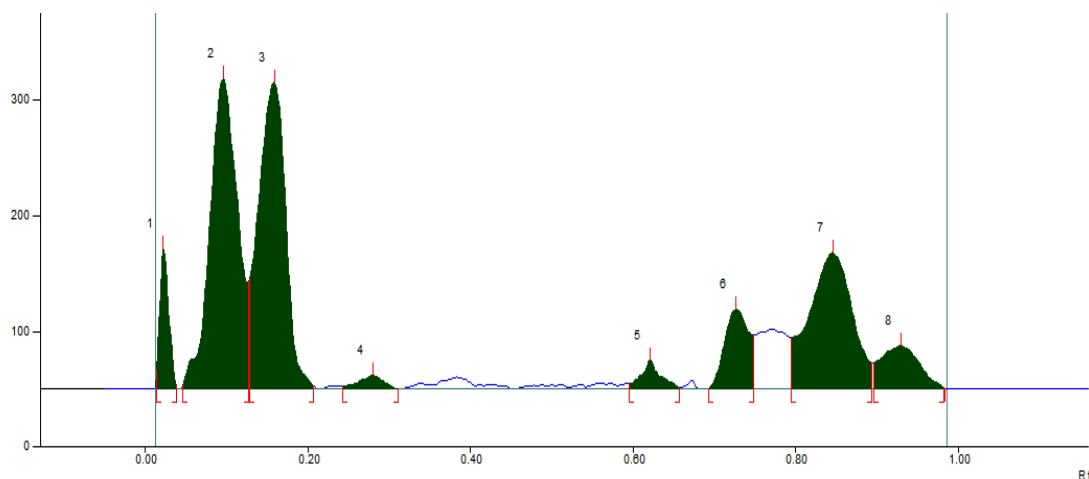
Solvent system: Toluene: Ethyl Acetate (7.0:2.0)



Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.01 Rf	31.0 AU	0.02 Rf	247.5 AU	30.74 %	0.05 Rf	0.0 AU	2083.1 AU	12.40 %
2	0.05 Rf	0.5 AU	0.10 Rf	177.4 AU	22.03 %	0.12 Rf	46.5 AU	4193.5 AU	24.96 %
3	0.13 Rf	48.2 AU	0.15 Rf	177.3 AU	22.02 %	0.20 Rf	1.0 AU	3987.3 AU	23.73 %
4	0.24 Rf	0.3 AU	0.28 Rf	12.2 AU	1.52 %	0.30 Rf	1.5 AU	225.9 AU	1.34 %
5	0.69 Rf	0.4 AU	0.72 Rf	52.8 AU	6.56 %	0.77 Rf	28.7 AU	1487.4 AU	8.85 %
6	0.79 Rf	26.3 AU	0.84 Rf	103.1 AU	12.81 %	0.89 Rf	15.8 AU	3720.4 AU	22.14 %
7	0.89 Rf	16.0 AU	0.93 Rf	34.7 AU	4.31 %	0.98 Rf	0.1 AU	1105.8 AU	6.58 %

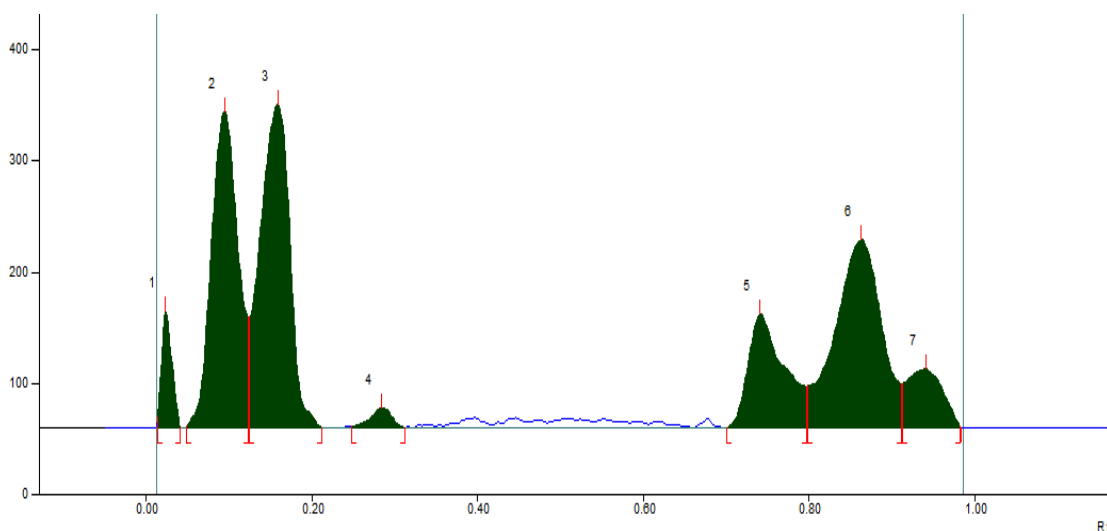
Graph 1: Densitometric scan of the sample At 254 nm (6  $\mu$ l) of *Ashodhita*.





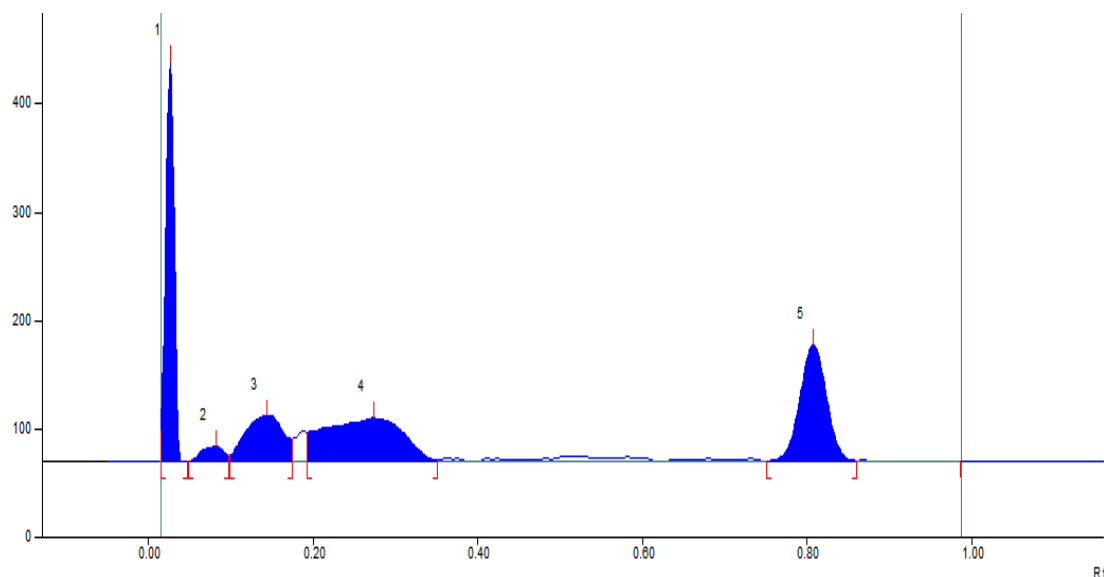
Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.01 Rf	15.0 AU	0.02 Rf	121.5 AU	13.28 %	0.04 Rf	1.9 AU	969.5 AU	4.42 %
2	0.05 Rf	2.0 AU	0.10 Rf	268.8 AU	29.39 %	0.13 Rf	92.5 AU	6612.8 AU	30.14 %
3	0.13 Rf	94.5 AU	0.16 Rf	264.7 AU	28.94 %	0.21 Rf	2.5 AU	6393.3 AU	29.14 %
4	0.24 Rf	1.9 AU	0.28 Rf	11.4 AU	1.24 %	0.31 Rf	0.1 AU	246.2 AU	1.12 %
5	0.60 Rf	4.2 AU	0.62 Rf	25.0 AU	2.74 %	0.66 Rf	0.6 AU	414.6 AU	1.89 %
6	0.69 Rf	0.2 AU	0.73 Rf	68.5 AU	7.49 %	0.75 Rf	46.7 AU	1503.5 AU	6.85 %
7	0.80 Rf	44.1 AU	0.85 Rf	117.4 AU	12.83 %	0.90 Rf	22.4 AU	4522.2 AU	20.61 %
8	0.90 Rf	22.5 AU	0.93 Rf	37.3 AU	4.07 %	0.98 Rf	0.6 AU	1276.7 AU	5.82 %

Graph 2. Densitometric scan of the sample At 254 nm (6 µl) of *Shodhanaby* cow dung.



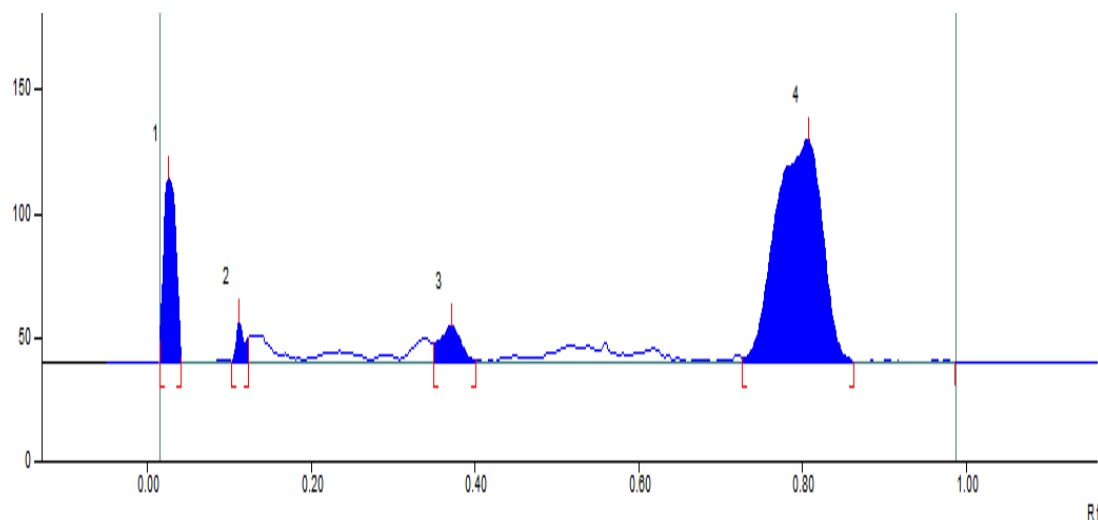
Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.01 Rf	10.1 AU	0.02 Rf	104.4 AU	10.24 %	0.04 Rf	0.0 AU	945.5 AU	3.50 %
2	0.05 Rf	1.0 AU	0.10 Rf	283.5 AU	27.82 %	0.12 Rf	98.8 AU	6611.9 AU	24.44 %
3	0.13 Rf	99.4 AU	0.16 Rf	289.9 AU	28.45 %	0.21 Rf	0.2 AU	7486.5 AU	27.68 %
4	0.25 Rf	1.1 AU	0.29 Rf	18.2 AU	1.78 %	0.31 Rf	0.2 AU	338.0 AU	1.25 %
5	0.70 Rf	0.1 AU	0.74 Rf	101.6 AU	9.97 %	0.80 Rf	37.3 AU	3218.8 AU	11.90 %
6	0.80 Rf	37.5 AU	0.86 Rf	168.5 AU	16.53 %	0.91 Rf	39.9 AU	6795.5 AU	25.12 %
7	0.91 Rf	40.1 AU	0.94 Rf	53.0 AU	5.20 %	0.98 Rf	1.9 AU	1654.7 AU	6.12 %

Graph 3. Densitometric scan of the sample At 254 nm (6 µl) of *Shodhnaby* milk.



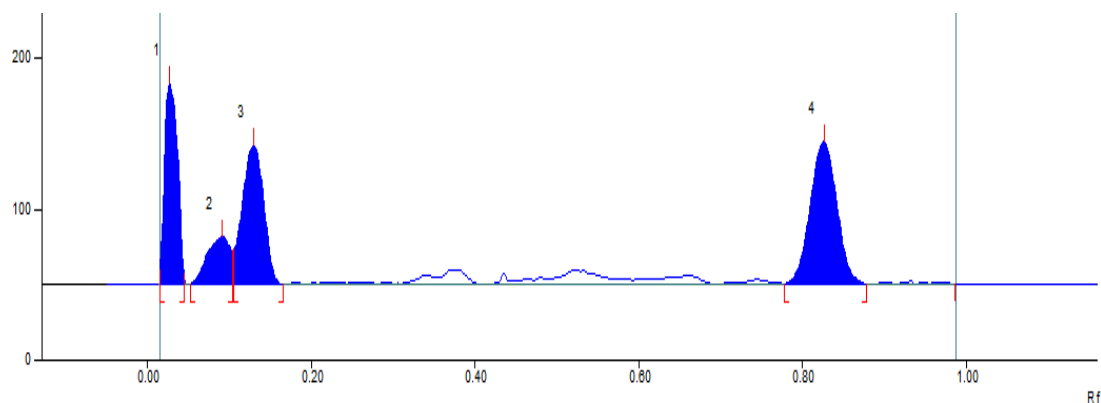
Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.02 Rf	28.7 AU	0.03 Rf	368.2 AU	64.35 %	0.05 Rf	0.0 AU	2766.3 AU	28.46 %
2	0.05 Rf	0.1 AU	0.08 Rf	13.9 AU	2.43 %	0.10 Rf	5.4 AU	271.2 AU	2.79 %
3	0.10 Rf	5.7 AU	0.15 Rf	42.7 AU	7.47 %	0.18 Rf	20.8 AU	1418.8 AU	14.60 %
4	0.19 Rf	26.7 AU	0.27 Rf	39.8 AU	6.96 %	0.35 Rf	1.1 AU	2746.8 AU	28.26 %
5	0.75 Rf	0.2 AU	0.81 Rf	107.5 AU	18.79 %	0.86 Rf	0.5 AU	2516.6 AU	25.89 %

Graph 4. Densitometric scan of the sample At 366 nm (6 µl) of *Ashodhita*.



Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.02 Rf	9.0 AU	0.03 Rf	73.6 AU	37.75 %	0.04 Rf	2.0 AU	798.7 AU	16.47 %
2	0.10 Rf	0.5 AU	0.11 Rf	16.7 AU	8.58 %	0.12 Rf	10.0 AU	122.4 AU	2.52 %
3	0.35 Rf	7.6 AU	0.37 Rf	14.8 AU	7.60 %	0.40 Rf	0.7 AU	277.9 AU	5.73 %
4	0.73 Rf	1.6 AU	0.81 Rf	89.7 AU	46.06 %	0.86 Rf	0.0 AU	3649.8 AU	75.27 %

Graph 5: Densitometric scan of the sample At 366 nm (6 µl) of *Shodhna by cow dung*.



Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.02 Rf	9.4 AU	0.03 Rf	133.3 AU	37.99 %	0.05 Rf	7.1 AU	1532.6 AU	25.04 %
2	0.05 Rf	0.1 AU	0.09 Rf	31.6 AU	9.01 %	0.10 Rf	22.1 AU	636.3 AU	10.40 %
3	0.11 Rf	22.9 AU	0.13 Rf	91.7 AU	26.13 %	0.17 Rf	0.0 AU	1733.0 AU	28.32 %
4	0.78 Rf	0.3 AU	0.83 Rf	94.3 AU	26.87 %	0.88 Rf	0.3 AU	2218.2 AU	36.24 %

Graph 6: Densitometric scan of the sample At 366 nm (6 µl) of *Shodhna by milk*.

Table No. 12: R<sub>f</sub> values of the samples At 254 nm (At 6 µl).

<i>Ashoditha</i>	<i>Shodhna by cow dung</i>	<i>Shodhna by milk</i>
0.09(Green)	0.09(Green)	0.09(Green)
0.13(Green)	0.13(Green)	0.13(Green)
-	0.68(L Green)	0.68(L Green)
0.74(L Green)	0.74(L Green)	0.74(L Green)

Table No. 13: R<sub>f</sub> values of the samples At 366 nm (At 6 µl).

<i>Ashoditha</i>	<i>Shodhna by cow dung</i>	<i>Shodhna by milk</i>
0.05(F L Violet)	-	-
0.08(F L Violet)	-	0.08(F L Violet)
0.12(F Green)	0.12(F L Green)	0.12(F Violet)
0.18(F L Green)	-	-
-	0.20(F L Green)	-
0.22(F Green)	-	0.22(F L Green)
0.26(F Green)	-	0.26(F L Green)
-	0.32(F L Green)	-
-	-	0.34(F L Green)
0.38(F L Green)	-	-
-	0.40(F L Green)	-
-	-	0.43(F L Green)
-	-	0.47(F L Green)
0.49(F L Green)	0.49(F L Green)	-
0.58(F L Green)	0.58(F L Green)	0.58(F L Green)
-	0.62(F L Green)	-
-	-	0.65(F L Green)
-	0.69(F Blue)	-
0.72(F Aqua)	0.72(F Aqua)	0.72(F Aqua)

**Table No. 14: R<sub>f</sub> values of the samples After Derivatisation (At 6 µl).**

<i>Ashoditha</i>	<i>Shodhna by cow dung</i>	<i>Shodhna by milk</i>
0.07(Violet)	0.07(Violet)	0.07(Violet)
0.13(Violet)	0.13(Violet)	0.13(Violet)
0.17(L Violet)	0.17(L Violet)	0.17(L Violet)
0.20(L Violet)	0.20(L Violet)	0.20(L Violet)
0.24(L Violet)	0.24(L Violet)	0.24(L Violet)
-	0.30(L Violet)	0.30(L Violet)
0.55(L Violet)	-	-
-	0.58(L Violet)	-
-	-	0.60(L Violet)
0.65(L Violet)	0.65(L Violet)	0.65(L Violet)
0.68(L Violet)	0.68(L Violet)	0.68(L Violet)
0.77(L Violet)	0.77(L Violet)	0.77(L Violet)
0.84(L Violet)	0.84(L Violet)	0.84(L Violet)

## DISCUSSION

In this study mainly, shodhana of Jayapalabeeja (*Croton tiglium*Linn.) by using two media cow milk and juice of cow dung, may have different physico-chemical and phytochemical characteristics in all three Ashodhita, Shodhita by cow milk and Shodhita by juice of cow dung and it will be observed and compared.

From the chemical analysis of Jayapalabeeja, it can be seen that it contains many compounds which are harmful in nature. In Ayurveda jayapala used in many therapeutic combinations after proper shodhana procedures for reducing its poisonous effects. Shodhana is a process that which converts the dreadful drug to a safest one for therapeutic purposes.

Shodhana process are used to remove visha or decrease concentration of toxic constituents or convert them to chemically modified compounds which are less toxic and may be more potent. These claims that herbal drugs when given after shodhana process possess lesser toxicity and enhances efficacy. Changes were observed during the shodhana procedure are,

### 1. Shodhana by cow milk

Godugdha took 30 minutes to boil. steam changes from smell of milk to slightly irritating odour. the tightness of pottali was increased as compared to the tightness at the time it was tied. after opening the pottali the seeds were bulged. the colour of milk changes to the creamish brown from white. the seeds has got the odour of milk after the shodhana procedure.

## 2. Shodhana by juice of cow dung

Juice of cow dung took 35 minutes to boil. Steam changes from smell of cow dung to slightly irritating odour. the tightness of pottali was increased as compared to the tightness at the time it was tied. after opening the pottali the seeds were bulged. the colour of milk changes to the dark brown from brown. the seeds has got the odour of cow dung after the Shodhana procedure. The texture of Ashodhita sample was hard where as both shodhita samples were soft. The colour of Ashodhita sample was light brown and Shodhita by cow milk sample was whitish brown and Shodhita by cow dung was dark brown. the odour of all three samples were Characteristic

Foreign matter was nil in the all three samples as it was collected very carefully. Moisture content of Ashodhita Jayapalabeejachurna was found to be 2.11% and Shodhita by cow milk was 3.25% and Shodhita by cow dung sample was 1.27%. Shodhita by cow milk value is more than Ashoshita and Shodhita by cow dung samples because of media Godugdha having fat content. Shodhita by cow dung was less moisture content compared to both samples.

### Total ash value

It is used to determine quality and purity of a crude drug. High ash value is the indication of contamination, substitution, adulteration or carelessness in preparing the crude drugs. Total ash value of Ashodhita Jayapalabeejachurna is found to be 1.37% and shodhita by cow milk was 1.17% and Shodhita by cow dung was 1.19%. here Shodhita by cow milk sample have less percentage of ash value signifies the capacity of media cow milk in purification of toxins. Whereas it was more in Ashodhita sample.

### Acid insoluble ash

It is the ash which is insoluble in dil. HCL. The both Shodhita sample compile with API standards (less than 0.5%). The result of Ashodhita sample is 0.6% i.e more than normal value.

### Water soluble ash

Its value was minimum in Ashodhita sample (0.80%) than Shodhita by cow dungs sample (0.84%) and Shodhita by cow milks sample (0.86%).

## EXTRACTIVE VALUES

### Alcohol soluble extractive values

It is more than 15% for all three samples. i.e in Ashodhita sample 20.00%, Shodhita by cow milk sample 22.40% and Shodhita by cow dungs sample was 23.50%.

### Water soluble extractive value

Ashodhita sample had 9.38%, Shodhitaby cow milks 12.64% and Shodhita by cow dung sample was 14.75%.

### Chloroform soluble extractive value

Chloroform soluble extractive value of Ashodhita sample found to be 14.20%, Shodhita by cow milk sample was 28.80% and Shodhita by cow dungs sample as 11.60%. Shodhita by cow dungs sample was less value in compared with both sample.

### Acetone soluble extractive value

The acetone soluble extractive value of Ashodhita was 33.40%, Shodhita by cow milk was 18.40% and Shodhita by cow dung was 17.40%.

### Petroleum ether extractive value (Total fatty content)

The total fatty content of Ashodhita sample was 55.42%, Shodhita by cow milk was 18.55% and Shodhita by cow dung was 16.40%. It shows the toxicity reduced after Shodhna. Cow dungs sample had less value compared than both samples.

## High Performance Thin Layer Chromatography

### At 254nm

Ashodhita, Shodhita by cow dung and cow milk 3 similar Rf values were observed i.e., 0.09(green), 0.13(green), and 0.74 (light green). Shodhita by cow dung and cow milk had one more Rf i.e., 0.68(light green)

### At 366nm

In Ashodhita and shodhita by cow dung had were more Rf i.e., 0.49 (fluorescence light green). In Ashodhita and Shodhita by cow milk had 3 more Rf i.e., 0.08 (fluorescence light violet), 0.22 (fluorescence green) and 0.26 (fluorescence green).

In Ashodhita sample had 3 more Rf value i.e, 0.05 (fluorescence light violet), 0.18(fluorescence light green) and 0.38 (fluorescence light green). In Shodhita by cow dung

had 5 more Rf value i.e, 0.20 (fluorescence green), 0.32(fluorescence green), 0.40 (fluorescence green) 0.62(fluorescence green).

In Shodhita by cow milk had 4 more Rf value i.e, 0.34 (fluorescence green), 0.43 (fluorescence green), 0.47 (fluorescence green) and 0.65 (fluorescence green).

#### **At after derivatisation**

Alcoholic extract of Ashodhita, Shodhita by cow dung and Shodhita by cow milk, 9 similar Rf value were observed i.e 0.07(violet), 0.13(violet), 0.17(light violet), 0.20(light violet), 0.24(light violet), 0.65(light violet), 0.68(light violet), 0.77(light violet), and 0.84 (light violet).

- Shodhita by cow dung and sodhita by cow milk had are more Rf i.e, 0.30(light violet), Ashodhita sample had 1 more Rf value i.e, 0.55(light violet). Shodhita by milk had 1 more Rf value i.e, 0.60 (light violet). The changes in chemical constituents were confirmed by HPTLC, in this study.
- On the basis of HPTLC result,
  - The number of Rf value and area are less observed in Shodhita by cow dung samples in compared with Ashodhita and Shodhita by cow milk sample. It indicates there will be reduction in chemical constituents in Shodhita by cow dungs sample.
  - After HPTLC, clearly see that ten components present in the crude drug i.e Ashodhita and Shodhita by cow milk Jayapalabeejaachorna sample were reduced to nine components by the purification process to shodhita by cow dung Jayapalabeeja sample.
  - The components observed at Rf values 0.23, 0.20, 0.32, 0.40, 0.49, 0.58, 0.62, 0.69, and 0.72 can be seen to be retained during the purification process in Shodhita by cow dung sample.

#### **CONCLUSION**

- In this study Jayapalabeeja showed marked physical changes in texture ,colour, odour, weight after shodhana process.
- Under qualitative analysis, it was observed that Proteins, Cardiac glycosides, Carbohydrates, Tannin and phenolic compounds were present in all three samples.it is traced in significant amount of concentration is seen in Ashodhita while comparing to Shodhita samples. It shows reduction in concentration of chemical constituents after shodhana procedure.

- Changes of fixed oil contents is very important, mainly poisonous substance are present in the seeds oil. In ashodhita sample fixed oil content value is more than Shodhitasamples. Shodhita by cow dung sample had less value compared with Ashodhita and Shodhita by cow milks sample.
- In this study, shodhana by cow dung sample was found to be in its own significance.
- According to present study, it can be conclude that the Shodhana by Cow dung is markedly effect the drug Jayapala.
- On the basis of above results it can be concluded that, after Shodhana process by two media, Shodhita by cow dungs sample is significant less toxic when compared with other two i.e Ashodhita sample and Shodhita by cow milk sample.

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