

COMPARATIVE PHARMACEUTICO ANALYTICAL STUDY

OF CHYAVANPRASHA YOGA DESCRIBED IN CHARAKA

SAMHITA AND SHARANGADHARA SAMHITA

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ABSTRACT

Chyavanprasha Avaleha is widely prescribed & even very popular as an over the counter product. There are various references for *Chyavanprasha Avaleha* in Ayurvedic texts. Among them, references in *Charaka Samhita* and *Sharangdhara Samhita* are significant. The rationality and utility of these techniques of preparation need to be evaluated. Till now studies done on *Chyavanprasha Avaleha* have not highlighted the differences between the two methods. Hence this study was undertaken, which was classified in to two divisions Pharmaceutical study, Analytical study prepared by two methods. Preparation of *Chyavanprasha Avaleha* as carried out as per references of *Charaka Samhita* and *Sharangdhara Samhita*. The method of preparation was same in both the references except in frying of *Amalaki* pulp where, *Charaka Samhita* mentioned both *Ghrita* & *Taila*, whereas *Sharangdhara Samhita* mentioned only *Ghrita*. *Chyavanprasha Avaleha* was subjected to analytical study to establish the standards in terms of Organoleptic Characters and Physicochemical constants, which were carried out at SDM Centre for research in Ayurveda & Allied sciences, Udupi.

Results : Analysis of the results obtained from the Analytical study revealed that the total fat content was more in *Chyavanprasha Avaleha* prepared by *Charaka Samhita* method compared to *Sharangdhara Samhita* method.

Keywords: *Chyavanprasha Avaleha*, Analytical Study

INTRODUCTION: *Rasayana* are the groups of herbal, herbo-mineral and herbo-metallic preparations explained in Ayurvedic texts to prevent the process of aging. They help in the nourishment of *Rasadi Dhatus* ultimately the *Ojas*. It is responsible for physical, psycho-intellectual performances and immunity. Thus *Rasayana* promotes long span of youthful life with full of vigor and free from diseases.¹ It prevents the adverse effects of aging and therefore, it can be postulated that *Rasayana* drug may have free radical scavenging property. A long healthy life is a wish of every human being. In the present scenario, people are prone to diseases due to faulty food habits

and lifestyle. *Rasayana* is one of the specialties of Ayurveda. *Rasayana* acts by preventing the disease as well as promotion of positive health. It was employed by the ancient people to develop some of the innate faculties and also to prolong active life so that they could prevent the process of senile degeneration². *Chyavanprasha Avaleha* is very commonly used health supplement and medicine since centuries. It is one of the popular *Rasayana Yoga*. In India it has been relished as a health food since ancient times with enthusiasm for the past 4000 years³. *Chyavanprasha Avaleha* has been regarded as one of the most respected anti-ageing Ayurvedic tonic, since long time,

before the clinical importance of vitamins, minerals and antioxidant was appreciated³. Standardized Formulations arose out of the need to create a uniform product for clinical trial. *Chyavanprasha* is *Avaleha* (semi-solid) preparation, which incorporates above 40 herbal ingredients. It is observed that the consistency and the taste vary from one manufacturer to another, even these variations are observed in the same pharmaceutical company in different manufacturing batches. Hence it is the need of the hour to standardize procedure to obtain product consistency. Physical evaluation of the drugs can be carried out with reference to Loss on drying at 105° C, Total-ash, Acid-

insoluble ash, Ph, Total solid, Fat content, Reducing sugar and Total sugar. With the advent of new analytical tools and sophisticated instrumental technology [Like HPTLC], the quality assurance profile for its bioactive constituent can be made possible.

PHARMACEUTICAL STUDY: AIMS & OBJECTIVES:

1. Preparation of *Chyavanprasha Avaleha* according to *Charaka Samhita*¹
 2. Preparation of *Chyavanprasha Avaleha* according to *Sharangadhara Samhita*⁴
- Preparation of *Chyavanprasha Avaleha*
Name:-*Chyavanprasha Avaleha* According
To *Charaka Samhita*
Reference: *Charaka Samhita*

Table No. 1 Ingredients:

1 Bilva	1 Pala	19 Pushakaramoola	1 Pala
2 Agnimantha	1 Pala	20 Agaru	1 Pala
3 Shyonaka	1 Pala	21 Abhaya	1 Pala
4 Kashmarya	1 Pala	22 Guduchi	1 Pala
5 Patala	1 Pala	23 Ashvagandha	1 Pala
6 Bala	1 Pala	24 Shatavari	1 Pala
7 Prishniparni	1 Pala	25 Vidarikanda	2 Pala
8 Shalaparni	1 Pala	26 Varahikanda	2 Pala
9 Mudagparni	1 Pala	27 Shati	1 Pala
10 Mashaparni	1 Pala	28 Musta	1 Pala
11 Pippali	1 Pala	29 Punarnava	1 Pala
12 Gokshura	1 Pala	30 Bruhat Ela	1 Pala
13 Bruhati	1 Pala	31 Chandana	1 Pala
14 Kantakari	1pala	32 Utpala	1pala
15 Shrungi	1pala	33 Vasa Moola	1pala
16 Tamalaki	1pala	34 Vidarikanda	1pala
17 Draksha	1pala	Amalaki	5 Kg(377 Piece)
18 Jivanti	1pala	Ghrita	6 Pala = 300 Ml
<i>Khanda Sarkara</i>	2.4 Kg	<i>Tila Taila</i>	6 Pala = 300 Ml

Table .2 Prakshepaka Dravya:

1 Vamshlochana 4 pala	4 PALA=192 gm	7 Madhu (HONEY)	6 pala = 300 gm
2 Pippali	2 pala = 96 gm		
3 Twak	1 pala = 48 gm		
4 Ela	(12 gm each)		
5 Patra			
6 Nagkeshara			

*1 pala = 50 gm

*Ardhatula = 2.4 k

Name: - *Chyavanprasha Avaleha* According To *Sharagdhara Samhita*

Reference: *sharangdhara Samhita (madhyamkhanda)*

Here the main differences found was frying of *amalaki pulp*. Here only *ghruta* was used 7 *pala* for frying. Other process and ingredients are same but here *satavari* and *ashvagandha* 2 *pala* added..

Table .3 Pratinidhi dravyas :

1. meda and mahameda	Shatavari	3. kakoli and kshirkakoli	Shvagandha
2. jivaka and hrishabhaka	vidarikand	4. rudhhi and vrudhhi	varahikanda

Equipment: Heating device – Gas burner with LPG cylinders, Stainless Steel Vessel, Big copper vessel, Stainless Steel Ladle, Plates, Cloth, Container, BURNER, Fire wood etc.

Unit Process for Avaleha⁴:

As per the reference 500 fully ripened *Amalaki Phala* were taken. 5 *Pottalis* of the *Amalaki Phala*, each containing 100 *Amalaki* were prepared. The coarse powder of all the *Kwatha Dravyas* was prepared in the pulverizer one by one. Preparation of *Kwatha* was done using all the *Kwatha Dravyas* along with *Pottali* which contained *Amalaki*. Ratio for *Kwatha* preparation was taken as 1 *Drona* (12 lit) of water and was reduced to 1/8th (1.5 lit) After reducing the *Kwatha*, the *Pottali* were removed and the *Kashaya* was filtered. *Amalaki* pulp was separated from the fruits by rubbing them over a clean cloth. The *Amalaki* pulp was then fried in *GHRITA* and *ILA TAILA* until properly cooked and kept aside. In the *sharangdhara Samhita* 7 *pala* of *GHRITA* was taken. Meanwhile, *Khanda Sharkara* was dissolved in the prepared *Kashaya* and *Paka* was prepared upto one thread consistency. After obtained one thread *Paka*, the fried *Amalaki* pulp was added and mixed thoroughly. After the attainment of *Avaleha Siddha Lakshana*, the *Prakshepaka Dravyas* were added and mixed until a homogenous mixture was obtained. After cooling of the *Avaleha*, prescribed amount of honey was added and mixed homogenously. Later the *Avaleha* was packed into wide mouthed air tight plastic containers.

OBSERVATION: Here the *Amalaki Phala* used wild variety which is small in size, pinkish in color which had *Kashaya*

Rasa in predominance. Some of the ingredients being hard in nature were not easy to be made into course powder, so they were first cut in to small pieces and then powdered in pulverizer. Soft drug like *Draksha* was just crushed in *Ulukhal Yantra* and added directly in to the *Kwatha*. For the preparation of *Pottali*, cloth was taken, filled with sufficient *Amalaki* and tied firmly. Frequent stirring was done during the preparation of *Kashaya* so as to avoid the charring of the cloth of *Pottali* as well as charring of the drugs. After the reduction of *Kwatha*, it was filtered immediately to avoid reabsorption of the water content by the drugs. The pulp was separated by rubbing *Amalaki Phala* on a strong cloth to avoid tearing of the cloth as it involved rubbing of *Amalaki Phala*. After dissolving *Khanda Sharkara* into the *Kashaya*, it was filtered once again through a cloth to remove the physical impurities present in the *Khanda Sharkara*. The *Amalaki* was fried till the *Ghrita* start to separate from the pulp and all the moisture content was evaporated. After the attainment of *Avaleha Sidhi Lakshanas* like *Tantumativam*, *Apsumajjatvam* etc the heating was stopped and left overnight to cool on its own. After cooling, the addition of honey was done and it was observed that mixing was very difficult to carry out.

ANALYTICAL STUDY

Chemical analysis of any drug should be known well before experimental and clinical trials. Chemical study ensures not only chemical constituents but also the standards of various preparations. The standards indirectly give suggestions for the further advancements

AIMS & OBJECTIVES:

1. To analyse both the samples of *Chyavanprasha Avaleha* by utilizing suitable parameters.
2. To compare both the samples on various parameters.

Analysis on Ayurvedic Parameters⁵

1. *Tantumativam*
2. *Apsu-majjanam*
3. *Sthiratvam*
4. *Peedite mudra*
5. *Gandha varna rasodbhavaha*.

Assessment of Organoleptic characters:

- a. *Rupa* (Colour)
- b. *Rasa* (Taste)
- c. *Gandha* (smell)

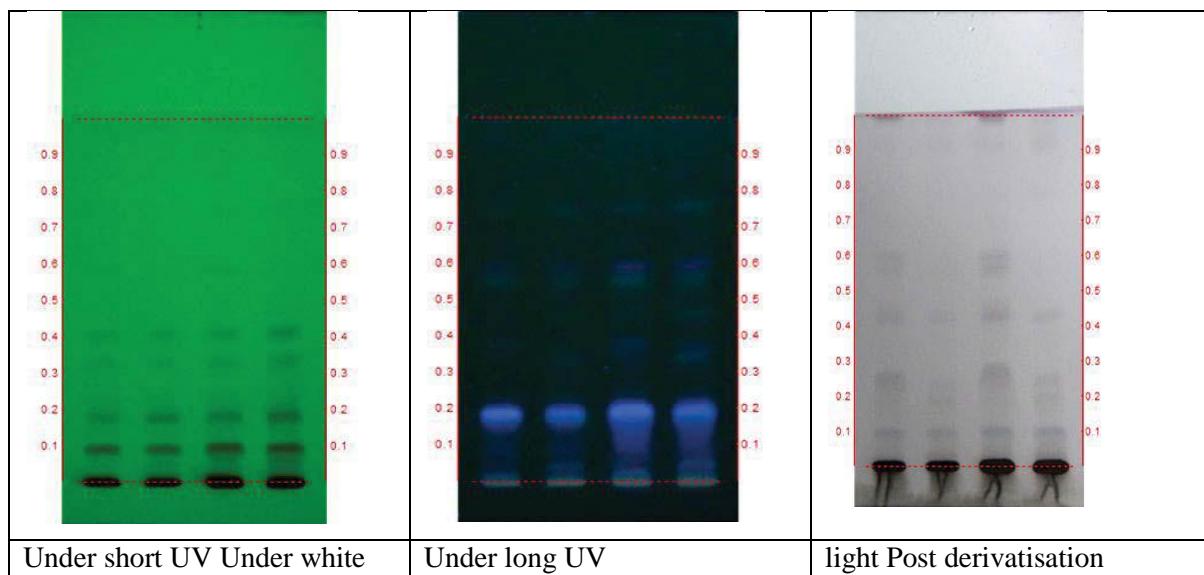
Table No. 4: Organoleptic characters of two samples of *Chyavanprasha Avaleha*

Characteristics	<i>Charaka Samhita</i>	<i>Sharangdhara Samhita</i>
Taste	Specific	Specific (<i>Amalaki</i>)
Smell	Specific	Specific
Colour	Dark brown	Dark brown
Consistency	Semisolid	Semisolid

Table 5 B. Physico-chemical Parameters: Results of standardization parameters of *Chyavanprasha Avaleha* Parameter Results n = 3 %w/w

	<i>Charaka Samhita</i>	<i>Sharangdhara Samhita</i>
Loss on drying	2.11	1.94
Total Ash	3.43	3.89
Acid Insoluble Ash	2.19	2.59
Water soluble Ash	0.70	1.00
Alcohol soluble extractive value	30.81	28.50
Water soluble extractive value	75.37	78.19
Ph	5.0	5.0
Total fat	3.18	1.77
Total sugar	43.10	46.20
Reducing sugars	36.06	35.86

Figure 1. HPTLC photo documentation of Methanol extract of *Chyavanprash Avaleha I and II*



Under short UV Under white Under long UV light Post derivatisation

Track 1- *Chyavanprasha Avaleha I* – 4µl Track 2– *Chyavanprasha Avaleha II*– 4µl

Track 3- *Chyavanprasha Avaleha I* – 8µl Track 4- *Chyavanprasha Avaleha II* – 8µl

Table No.6: Rf values of Chyavanprasha Avaleha I and Chyavanprasha Avaleha II

<i>Chyavanprasha Avaleha I</i>	<i>Chyavanprasha Avaleha II</i>	<i>Chyavanprasha Avaleha I</i>	<i>Chyavanprasha Avaleha II</i>	<i>Chyavanprasha Avaleha I</i>	<i>Chyavanprasha Avaleha II</i>
0.05 (D.green)	0.05 (D.green)	0.05 (F.blue)	0.05 (F.blue)	-	-
0.10 (D.green)	0.10 (D.green)	0.10 (F.blue)	0.10 (F.blue)	0.10 (Purple)	0.10 (Purple)
0.19 (D.green)	0.19 (D.green)	0.19 (F.blue)	0.19 (F.blue)	0.19 (Purple)	0.19 (Purple)
				0.27(Purple)	0.27(Purple)
0.33(D.green)	0.33(D.green)				
			0.35 (F.blue)		
		0.38 (F.blue)			
0.42 (D.green)	0.42 (D.green)			0.42 (Purple)	0.42 (Purple)
			0.47 (F.blue)	0.47(Purple)	
		0.56 (FL.blue)	0.56 (FL.blue)	0.56 (Purple)	
0.59 (L.green)		0.59 (FD.blue)	0.59 (FD.blue)	0.59 (Purple)	
		0.76 (FL.blue)	0.76 (FL.blue)		
					0.78 (L.Purple)
				0.93(Purple)	0.93(Purple)

Figure 2. Densitometric scan of Chyavanprash Avaleha I and Chyavanprash Avaleha II at 254nm

Fig 2a. Chyavanprash I

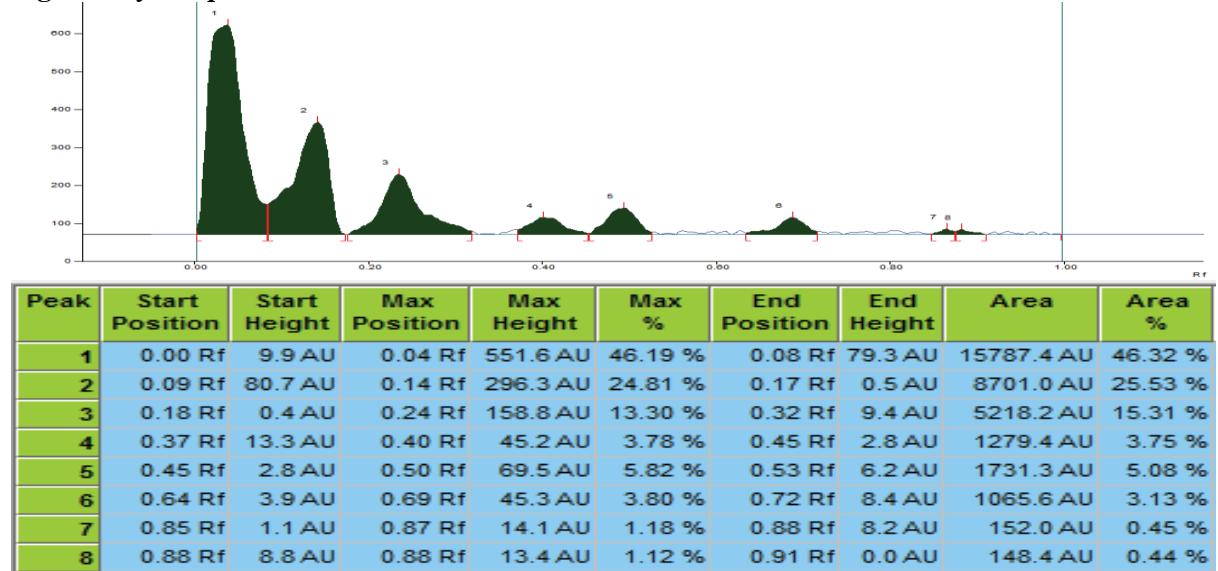


Fig 2b. Chyavanprash Avaleha II

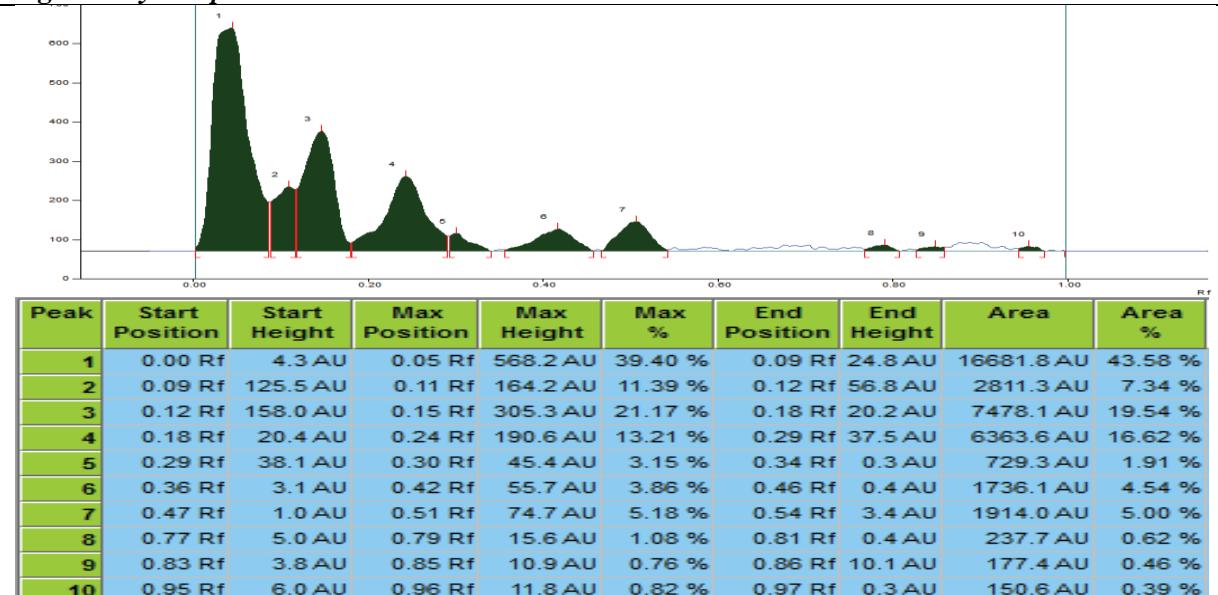
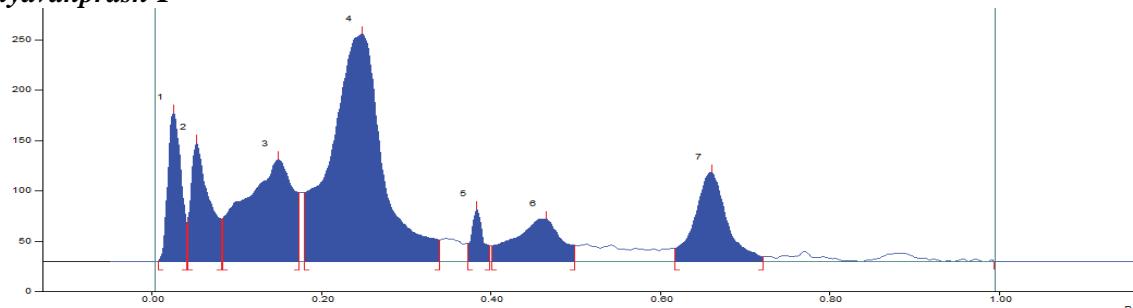


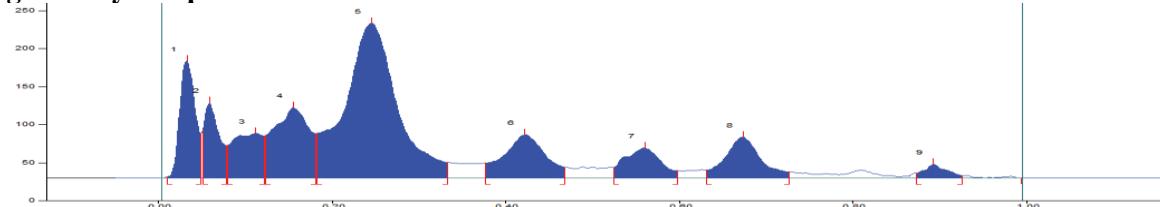
Figure 3. Densitometric scan of Chyavanprash Avaleha I and Chyavanprash Avaleha II at 366nm

Chyavanprash I



Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.01 Rf	0.5 AU	0.03 Rf	148.1 AU	19.07 %	0.04 Rf	37.5 AU	1631.8 AU	7.43 %
2	0.04 Rf	41.1 AU	0.05 Rf	118.4 AU	15.25 %	0.08 Rf	42.3 AU	1800.4 AU	8.20 %
3	0.08 Rf	42.7 AU	0.15 Rf	101.6 AU	13.08 %	0.17 Rf	68.6 AU	4124.1 AU	18.78 %
4	0.18 Rf	68.7 AU	0.25 Rf	225.6 AU	29.04 %	0.34 Rf	21.6 AU	9851.4 AU	44.87 %
5	0.37 Rf	18.0 AU	0.38 Rf	52.2 AU	6.73 %	0.40 Rf	15.9 AU	497.0 AU	2.26 %
6	0.40 Rf	16.1 AU	0.47 Rf	42.2 AU	5.43 %	0.50 Rf	16.3 AU	1670.6 AU	7.61 %
7	0.62 Rf	13.1 AU	0.66 Rf	88.6 AU	11.41 %	0.72 Rf	4.7 AU	2379.5 AU	10.84 %

Fig 3b. Chyavanprash II



Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.01 Rf	1.9 AU	0.03 Rf	153.6 AU	19.79 %	0.05 Rf	58.1 AU	1979.5 AU	9.34 %
2	0.05 Rf	62.5 AU	0.06 Rf	98.9 AU	12.74 %	0.08 Rf	42.9 AU	1242.6 AU	5.86 %
3	0.08 Rf	43.0 AU	0.11 Rf	59.1 AU	7.61 %	0.12 Rf	55.0 AU	1465.8 AU	6.91 %
4	0.12 Rf	55.6 AU	0.16 Rf	92.6 AU	11.93 %	0.18 Rf	58.5 AU	2710.1 AU	12.78 %
5	0.18 Rf	58.7 AU	0.25 Rf	203.5 AU	26.22 %	0.33 Rf	20.6 AU	8765.0 AU	41.34 %
6	0.38 Rf	19.8 AU	0.42 Rf	56.7 AU	7.30 %	0.47 Rf	14.4 AU	1948.8 AU	9.19 %
7	0.53 Rf	14.3 AU	0.56 Rf	39.8 AU	5.13 %	0.60 Rf	9.8 AU	1179.8 AU	5.56 %
8	0.63 Rf	10.5 AU	0.67 Rf	53.9 AU	6.94 %	0.73 Rf	8.2 AU	1567.8 AU	7.39 %
9	0.87 Rf	6.3 AU	0.89 Rf	18.3 AU	2.35 %	0.93 Rf	3.2 AU	345.3 AU	1.63 %

Figure 4. 3-D Chromatogram

Fig 4a. 254nm

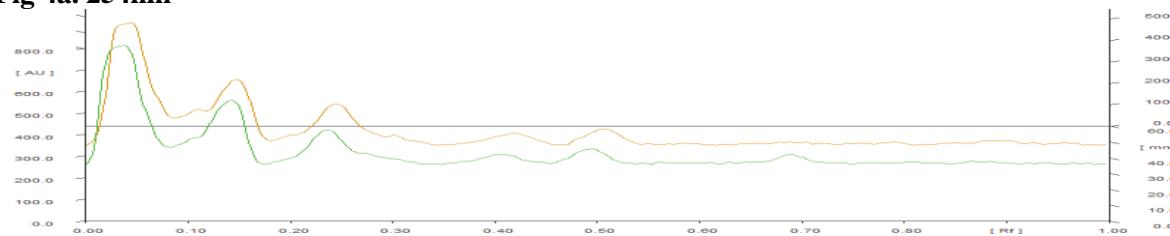
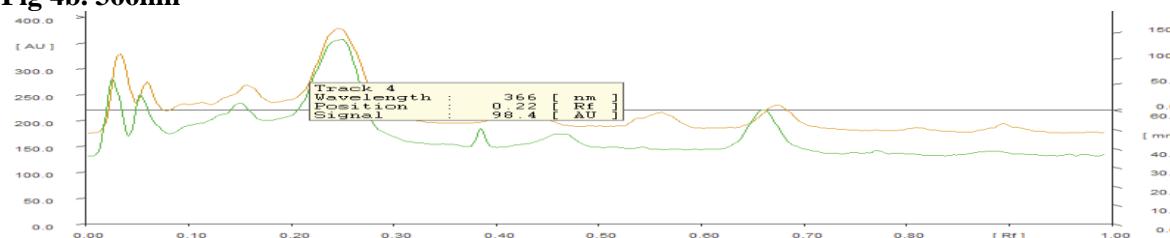


Fig 4b. 366nm



DISCUSSION: The difference found in these two references is in the medium used for the *Paka* (frying) of the *Amalaki* pulp. *Sharngadhara Samhita* mentions the use

of *Ghrita* while *Charaka Samhita* mentions the use of both *Taila* and *Ghrita* for the frying. When pharmaceutical study was concerned, much difference was not

found in the preparation of two samples of *Chyavanprasha Avaleha*. Evaluation of Organoleptic characters revealed that *Chyavanprasha Avaleha* sample prepared by following the method as mentioned in *Charaka Samhita* was found to be darker in colour and softer in touch as compared to the sample prepared by the method as mentioned in *Sharangadhara Samhita*. Total fat content was observed to be more in *Chyavanprasha Avaleha* prepared by *Charaka Samhita* when compared to *Sharangadhara Samhita* whereas other parameters of Analytical study did not show much difference.

H.P.T.L.C

Rf Values of samples

At 254nm HPTLC of *Chyavanprasha Avaleha* prepared from *Charaka Samhita* method shows six spots at the Rf values 0.05, 0.10, 0.19, 0.33, 0.42, 0.59 while *Chyavanprasha Avaleha* prepared from *Sharangadhara Samhita* method shows five spots at the Rf values 0.05, 0.10, 0.19, 0.33, 0.42. The alkaloid at the spots with Rf values 0.05, 0.10, 0.19, 0.33, 0.42 were common in both. The one new spots may be because of the other ingredients used for the preparation of *Chyavanprasha Avaleha*.

At 366nm HPTLC of *Chyavanprasha Avaleha* prepared from *Charaka Samhita* method showed seven spots at the Rf values 0.05, 0.10, 0.19, 0.38, 0.56, 0.59, 0.76 while *Chyavanprasha Avaleha* prepared from *Sharangadhara Samhita* method showed eight spots at the Rf values 0.05, 0.10, 0.19, 0.35, 0.47, 0.56, 0.59, 0.76. The alkaloid at spots with Rf values 0.05, 0.10, 0.19, 0.56, 0.59, 0.76 were common in both. The three new spots may be because of the other ingredients used for the preparation of *Chyavanprasha Avaleha*.

HPTLC Photo Documentation of samples

At 254nm In both sample Rf value 0.24 was common and maximum area percentage was 15.31% in sample prepared according to *Charaka Samhita* and 16.62%

in sample prepared according to *Sharangadhara Samhita* method. And the higher concentration area is at Rf value 0.04 i.e 46.32% in sample prepared according to *Charaka Samhita* and Rf value 0.05 i.e 43.58% in sample prepared according to *Sharangadhara Samhita* method. It may be because of the heating, the concentration of active principles was changed and addition of other drugs also plays a vital role.

At 366nm Highest percentage present in *Chyavanprashaa Avaleha* is at Rf value 0.25 i.e., 44.87%, in sample prepared according to *Charaka Samhita* and 41.34% in sample prepared according to *Sharangadhara Samhita* method. So we can say that it may be due to *Tila Taila* added to the preparation of *Chyavanprashaa Avaleha* in sample 1 which was prepared by *Charaka Samhita*.

CONCLUSION: Acharya Charaka was the first person to mention about *Chyavanprasha Avaleha*. It was used by *Maharshi Chyavana* which rejuvenated his body and made him young again. So this formulation is named after him as *Chyavanprasha Avaleha*. On the basis of the study not shown much differences of *avaleha* prepared by two different method. According to *charaka Samhita*, *ghita* and *taila* both are mentioned while *sharangdhara Samhita* only *ghruta* is mentioned, So it can be suggested for experimental study and clinical conditions for the further study.

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