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## Pharmacognostical and Pharmaceutical Analysis of Shirisha Ashwagandhadi Avaleha (SA)

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### ABSTRACT

*Shirisha Ashwagandhadi Avaleha* (SA) is proved very useful for the patients of Allergic rhinitis by previous research works. Allergic rhinitis is a most common annoying problem of day to day life affecting patient's quality of life. This compound was formulated by Late Pandit Shiv Sharma. The original recipe contains *Shirishadi Kwatha* (Decoction) and *Ashwagandhadi* compound. In the present era, people only accept such elegant, palatable and easy to consume and carry formulations. To overcome such difficulties; to convert classical formulations into elegant forms which are easy, acceptable and therapeutically viable. At the same time, with an intention to increase palatability, shelf life and to make a drug according to SMP and to do its Pharmaceutical and Pharmacognostical evaluation, study was carried out. Previous study was done to standardize manufacturing process of this *Avaleha* By Dr. Parth Dave *et.al*. The presence of Annular vessels, Bottle neck shaped stone cells, Simple and compound starch grains, Stellete trichome, Pitted stone were observed in the microscopy of prepared formulation. Physicochemical analysis showed that Total solid content was 7.24% and Acid insoluble ash was 2.39%. pH was 6.5. Total sugar estimation was 57.98%. HPTLC study showed 07 spots at 254 nm with Rf values and 08 spots at 366 nm with Rf values.

**Keywords:** Allergic rhinitis, Pharmacognosy, Pharmaceutical study, *Shirisha Ashwagandhadi Avaleha*,

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## INTRODUCTION

Ayurveda, a part of cultural heritage of India, is widely respected for its uniqueness and global acceptance as it offers natural ways to treat diseases and promote healthcare.<sup>1</sup> Classical text books of Ayurveda hold a number of remedies for different pathologies. Though classical formulations are effective; these are known to possess certain inconveniences. To overcome such difficulties; there is a need to convert classical formulations into elegant forms that are easy, acceptable and therapeutically viable. At the same time, with an intention to increase palatability, shelf life etc.; various dosage forms were developed in due course of time. In the present era, people only accept such elegant, palatable and easy to consume and carry formulations. First requisite in the present era is development of appropriate quality standards that fulfill increasing demands of global population. Standardization minimizes batch to batch variation; assure safety, efficacy, quality and acceptability of the polyherbal formulation.<sup>2</sup> Unfortunately, many formulations of present day practice are devoid of Standard Manufacturing Process (SMP) and quality profiles. *Shirisha Ashwagandhadi Avaleha* (SA) is one such formulation that is in practice for allergic rhinitis etc. This compound was formulated by Late Pandit Shiv Sharma. The original recipe contains *Shirishadi Kwatha* (Decoction) and *Ashwagandhadi* compound. Combination of these two drugs was found to be beneficial in cases of allergic rhinitis.<sup>3</sup> Previous studies at IPGT&RA-Jamnagar showed beneficial effect in management of Allergic Rhinitis but, they are difficult to be consumed in the current life style, considering which; both of them were converted in to SA by following general principles. Previously Standard Manufacturing Presses and its Pharmaceutical study was carried out by Dr Parth Dave *et.al.* and in this study Standard Manufacturing Process, Analytical parameters and Pharmacognosy study subjected to carry out<sup>4</sup>.

## MATERIALS AND METHOD

Raw herbal materials [Table-1] were collected from Pharmacy, Gujarat Ayurved University, Jamnagar and authenticated in pharmacognosy laboratory, IPGT & RA, Gujarat Ayurved University, Jamnagar. Genuine samples of *Abhraka Bhasma* (Calcined mica) was also collected from Pharmacy, Gujarat Ayurved University, Jamnagar; while *Shringa Bhasma* (Calcined deer horn) and *Sameera Pannaga Rasa* (Arsenomercurial compound) were collected from ASFA-Pharmacy, Surat and *Guda* (Jaggery) were procured from local market of Jamnagar.

### **Preparation of the drug *Shirisha Ashwagandhadi Avaleha* (SA)**

#### **1.Preparation of *Shirishadi Kwatha*:**

Completely dried *Kwatha Dravya* (Raw drugs for decoction) (27 kg) was soaked for 12 hours in four times of water (108 lit). The next day, the contents were subjected to mild heat (95–100°C) and *Kwatha* (decoction) was prepared by reducing to one fourth quantity (27 lit), which was filtered through cotton cloth to obtain *Shirishadi Kwatha*.

## **2.Preparation of *Shirisha Ashwagandhadi Avaleha*:**

*Kwatha* (27 lit) and *Guda* (14 kg) were mixed in a steel vessel and allowed to dissolve completely. The contents were filtered through cotton cloth to remove possible impurities of *Guda*. It was then subjected to heat (at 95°C to 100°C) for 8 hours, until the appearance of *Avaleha Siddhi Lakshana* (confirmatory tests on proper cooking of linctus)<sup>5</sup> i.e. *Darvi Praleptvam* (sticking to ladle), *Tantummatvam* (thready consistency) and *Appsumajjati* (sinks in water). The contents were stirred continuously throughout the process. At the end of this procedure, contents were removed from the heat source and *Prakshepa Dravya* (condiments) was added slowly with continuous stirring. The contents were stirred continuously till the blend became cool, homogenous & semisolid mass. The finished product was stored in air tight containers. In previous study 3 batches of 10 kg were prepared

## **Microscopic Study:**

Organoleptic and Microscopic studies of the prepared drug were done as per the guidelines of Ayurvedic pharmacopoeia of India at Pharmacognosy Lab, I.P.G.T and R.A, Jamnagar, Gujarat, India. Little quantity of *Avaleha* dissolved in the distilled water and placed on slide adding with small quantity of water and observed under the microscope to get the microscopical characters of the ingredients of the *Avaleha*, then stained with Iodine solution and Sudan III. Microphotographs were taken under the corl zeiss trinocular microscope attached with camera<sup>6</sup>. The diagnostic features obtained were found to be complying with the standards mentioned at respective volumes of API.

## **Organoleptic Study:**

*Shirisha Ashwagandhadi Avaleha* (SA) was evaluated for organoleptic characters like taste, odour and color, touch<sup>7</sup>.

## **Physico-chemical analysis:**

Preliminary physico-chemical parameters like Moisture content, Total solid content (in 10% sol.), Ash value, Acid insoluble ash, pH value, Water soluble extract, Methanol soluble extract, Total sugar Estimation, Total fatty matter were carried out<sup>8</sup>.

## **HPTLC:**

Methanol extract of *Shirisha Ashwagandhadi Avaleha* spotted on pre coated silica gel GF 254 aluminum plates by means of CAMAG Linomate V sample applicator fitted with a 100 µL Hamilton syringe. The mobile phase consisted of Toluene, Ethyl acetate and Acetic acid in a ratio of 7:2:1 v/v. After development densitometric scan was performed with a CAMAGT. L. C. scanner III in reflectance absorbance mode at 254 and 366nm under control of Win CATS Software<sup>9</sup>.

## RESULTS AND DISCUSSION

### Preparation of Drug:

*Kwatha* preparation was done by mixing coarse powder (sieve number 44) of raw material with addition of four times of water. Characteristic odour of ingredients was observed after sometime of heating. During *Kwatha* preparation, water soluble constituents move from the cells (raw materials) to the water, thus, altering the taste, odor and colour of the solvent.

During *Kwatha* preparation, characteristic color was noted after 3–4 hours of heating. *Gata Rasatva* (All active principles seeps into decoction) of *Kwatha Dravya* was observed after completion of the process. After mixing of *Guda*, the contents became darker. After 3–4 hours of heating with *Guda*, mixture became thick. Characteristic sweet odor of *Guda* was observed during *Paka*. It became golden brown after some time. Contents were settling down to bottom of the vessel, so continuous stirring was required. One thread thickness was observed after 5–6 hours of heating, which reached to two thread consistency after some time. Heat was stopped immediately. *Darvi Pralepatvam* (Sticking to the ladle) was noted at the stage of one thread thickness, heat was maintained up to *Patitastu Na Shiryate* (No spreading property) stage and two thread thicknesses was noted at this final stage. All *Gudapaka Lakshana* (chief desired characteristics of preparation with jaggery) were seen properly during *Avaleha* preparation. After cooling; mixture of decoction, jaggery, and condiments became hard. Even ladle was unable to move freely in it. Other characters like *Sthiratvam* (Stable), *Pidite Mudra* (Fingerprints are imparted), *Gandha Varna Rasodbhava* (Desired Colour-odour-taste) were seen after completion of the process. Average 23 kg *Avaleha* was made from 27 liters of *Kwatha*, 14 kg of *Guda* and 4.75 kg of *Prakshepa Dravya*. In previous work Average 29.53 kg *Avaleha* was made from 36 liters of *Kwatha*, 18 kg of *Guda* and 6 kg of *Prakshepa Dravya*.

**Table 1: Formulation Composition of Shirisha Ashwagandhadi Avaleha**

	Name of Drug	Latin/English name	Parts used	Proportion	Quantity
<i>Kwatha Dravya</i>	<i>Shirisha</i>	<i>Albizzia lebbec</i> Benth.	St. Bark	1 Part	3kg
	<i>Vasa</i>	<i>Adhatoda vasica</i> Nees	Leaf	1 Part	3kg
	<i>Kushtha</i>	<i>Sausurrea lappa</i> C.B.Clarke	Root	1 Part	3kg
	<i>Kantakari</i>	<i>Solanum xanthocarpum</i> Schrad&Wendl.	Whole plant	1 Part	3kg
	<i>Madhuyashti</i>	<i>Glycyrrhiza glabra</i> Linn.	Root	1 Part	3kg
	<i>Pushkarmula</i>	<i>Innula racemosa</i> Hook.f.	Root	1 Part	3kg
	<i>Vibhitak</i>	<i>Terminnelia chebula</i> Retz.	Fruit	1 Part	3kg
	<i>Haridra</i>	<i>Curcuma longa</i> Linn.	Rhizome	1 Part	3kg
	<i>Ajvayan</i>	<i>Tracheospermum ammi</i> SpragueLinn	Fruti	1 Part	3kg
		<i>Water</i>	-	-	36 Part
<i>Prakshepa Dravya</i>	<i>Ashwagandha Churna</i>	<i>Withania somnifera</i> Dunal	<i>Root</i>	0.44 part	1.36kg
	<i>SitopaladiChurna</i> containing i. <i>sitopala</i> ii. <i>Tugakshiri</i> iii. <i>Pippali</i> iv. <i>Ela</i> v. <i>Twak</i>	sugar candy <i>Bambusa arundinacea</i> Willd. <i>Piper longum</i> Linn. <i>Elettaria cardamomum</i> Maton <i>Cinnamomum zeylanicum</i> Blume	-	0.88 Part	2.75kg
	<i>Abhrak Bhasma</i>	Ash of Purified mica	Mineral	0.11 Part	340gm
	<i>Sameerpannag Rasa</i> -containing i. <i>Shuddha Parada</i> ii. <i>Shuddah Gandhak</i> iii. <i>Malla</i> iv. <i>Manahshila</i> v. <i>Hartala</i>	Purified mercury Purified sulphur Purified arsenic oxide Purified arsenic disulphide Purified arsenic trisulphide	-	0.03 Part	88gm
	<i>Shringa Bhasma</i>	Calcined Deer horn		0.03 Part	88gm
<i>Media</i>	<i>Guda</i>			5 part	14Kg

### Organoleptic characters of *Shirisha Ashwagandhadi Avaleha*:

Organoleptic characters of contents of *Avaleha* like color, taste odour and touch were recorded separately and are mentioned. (Table-2).

**Table 2: Organoleptic Characters**

No.	Test	Observation
1	<i>Rasa</i> (Taste)	<i>Tikta Madhura</i>
2	<i>Rupa</i> (Colour)	Brownish
3	<i>Gandha</i> (smell)	Typical jaggery smell
4	Consistency	Semi solid

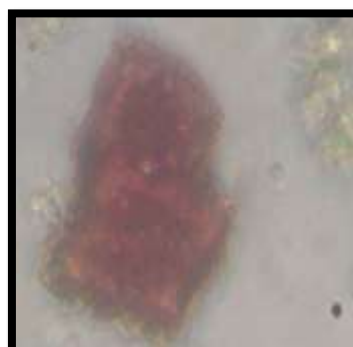
### Microscopic Study:

The diagnostic characters of microscopic analysis of *Shirisha Ashwagandhadi Avaleha* showed the Annular vessels of *Kusta*, Bottle neck shaped stone cells of *Pippali*, Cork cells in surface of *Twaka*, Crystal fibers of *Yashtimadhu*, Crystals of *Vansha*, Epicarp cells of *Ajwayan*, Epicarp cells of *Kantakari*, Group of starch of *Pushkaramoola*, Group of stone cells of *Ashwagandha*, Microcrystals of *Ela*, Oil globule of *Kusta*, Olio-resine of *Pippali*, Palisaded cells of *Tamalpatra*, Pitted stone cells of *Pushkaramool*, Rhomboidal crystal of *Yashti*, Rosette crystal of *Bibitaki*, Schelerides with stain of *Twaka*, Simple and compound starch grains of *Ashwaganda*, Simple trichome of *Ajwayan*, Simple trichome of *Tamalpatra*, Starch grain of *Shimshipa*, Stellete trichome of *Kantakari*, Stone cells of *Shimshipa*, Stretched fibres of *Ela*, Pitted stone and Simple Trichome of *Vasa* which are shown in PLATE – 1 (Figure 1–28).

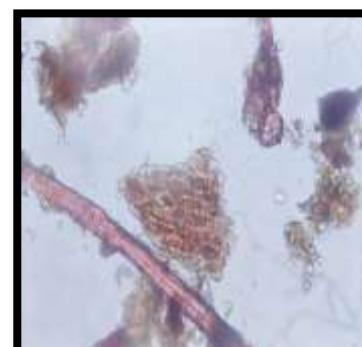
**Plate 1: Microscopic Evolution Of *Shirisha Ashwagandhadi Avaleha* Figure(1to 28)**



**1. Annular vessels of *Kustha***



**2. Bottle neck shaped stone cells of *Pippali***



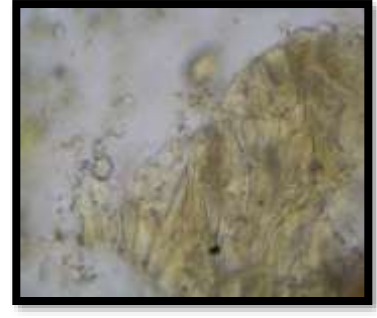
**3. Cork cells in surface of *Twak***



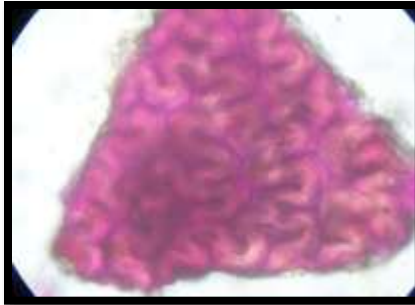
4. Crystal fibers of *Yashti*.



5. Crystals of *Vansha*



6. Epicarp cells of *Ajwan*



7. Epicarp cells of *Kantakari*



8. Group of starch of *Pushkaramool*



9. Group of stone cells of *Ashwagandha*



10. Microcrystals of *Ela*



11. Oil globule of *Kusta*



12. Olioresine of *Pippali*



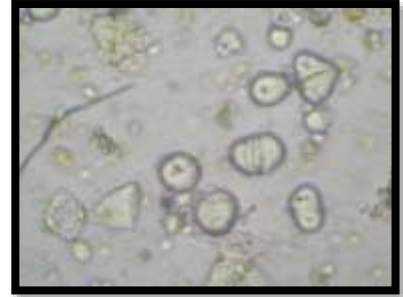
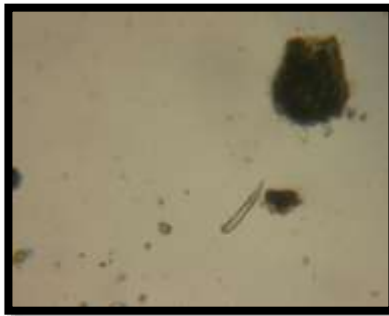
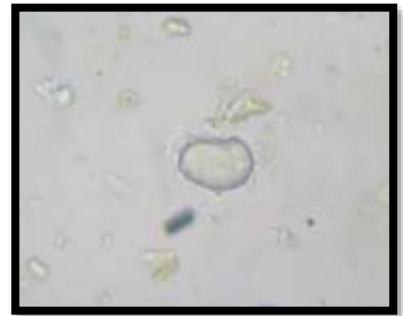
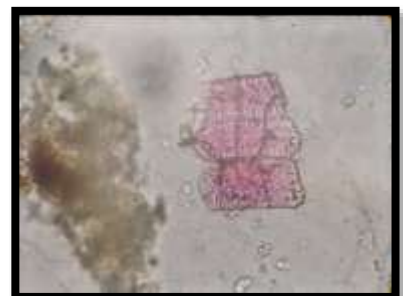
13. Palisaded cells of *Tamal patra*



14. Palisaded cells of *Tamal patra*



15. Rhomboidal crystal of *Yeshti*

16. Rosette crystal of *Bibitaki*17. Schlerides with stain of *Twak*18. Simple, compound starch of *Ashwaganda*19. Simple trichome of *Ajwan*20. Simple trichome of *Tamal patra*21. Starch grain of *Shimshipa*22. Stellate trichome of *Kantakari*23. Stone cells of *Shimshipa*24. Stone-*Bibitaki*25. Stretched fibres of *Ela*26. Trichome-*Bibitaki*

27. Vasa-Pitted stone

### Physicochemical tests:

Physicochemical parameters of *Shirisha Ashwagandhadi Avleha* was assessed with standard procedures and results are shown in Table 3.

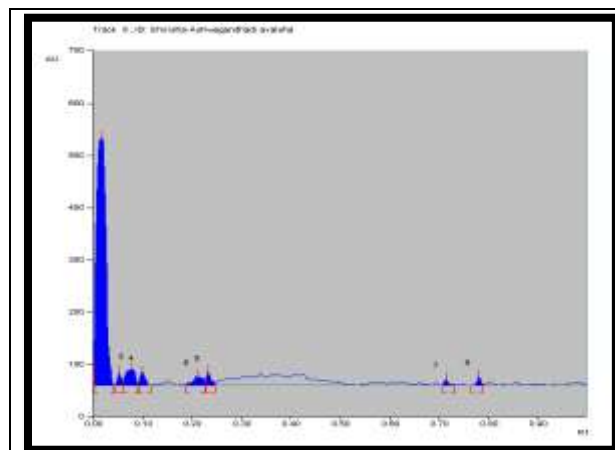
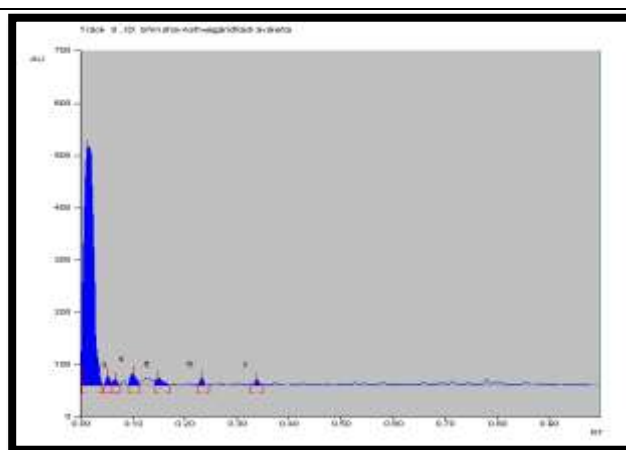
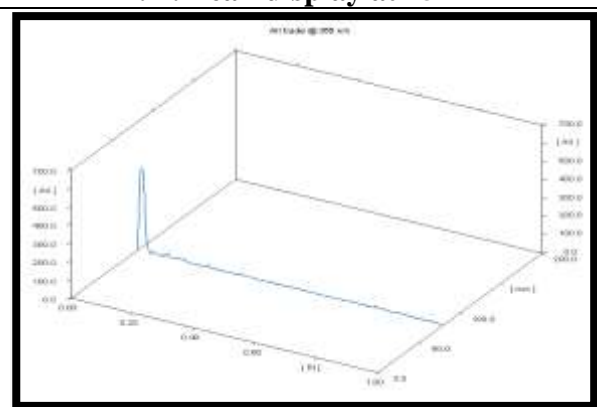
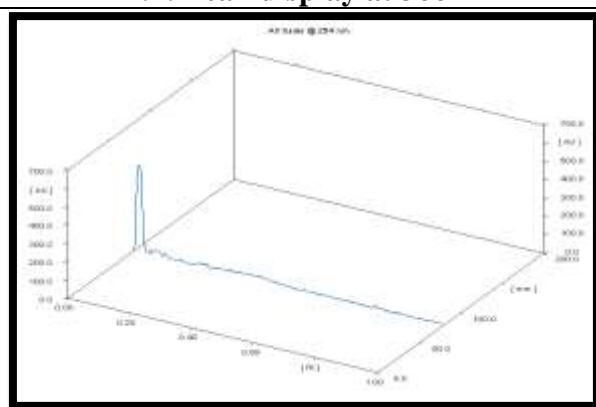


**Table 3 : Physico-Chemical Parameters Of *Shirisha Ashwagandhadi Avaleha***

S.NO.	Analytical Parameters	Observation
1.	Loss On Drying	12.37% w/w
2.	Ash Value	6.66% w/w
3.	Water Soluble Extract	47.73% w/w
4.	Methanol Soluble Extract	53.36% w/w
5.	pH (By pH Paper)	6.5
6.	Acid insoluble Ash	2.39% w/w
7.	Total sugar	57.98%
8.	Reducing sugar	48.44%
9.	Non reducing sugar	9.54%

**HPTLC study results:**

Chromatographic study (HPTLC) was carried out under 254 and 366 nm UV to establish fingerprinting profile. It showed 07 spots at 254 nm with R<sub>f</sub> values and 08 spots at 366 nm with R<sub>f</sub> values recorded which may be responsible for expression of its pharmacological and clinical actions (PLATE-2, Table- 4).

**Plate 2: Hptlc Study Of SA (Figure 1.1 To 1.4)****1.1 : Peak display at 254 nm****1.2: Peak display at 366 nm****1.3: 3D-Graph of 366 nm****1.4: 3D-Graph of 254 nm**

**Table 4: HPTLC Study Of SA**

No.	Wave length	Number of spots	Minimum Rf values
1	254nm	8	0.02, 0.05, 0.08, 0.10, 0.21, 0.23, 0.71, 0.78,
2	366nm	7	0.01, 0.05, 0.07, 0.10, 0.15, 0.23, 0.34

## CONCLUSION:

Study on *Shirisha Ashwagandhadi Avaleha* is a step towards pharmacognostical, physico-chemical standardisation of poly herbal formulation in *Avaleha* form. As there is no published information available on pharmacognostical and physico-chemical profiles of this *Shirisha Ashwagandhadi Avaleha* preliminary information can be used for reference in future for similar research works.

## REFERNCES

1. Mukherjee PK, Houghton PJ. Evaluation of herbal medicinal products – perspectives of quality, safety and efficacy. UK: Pharmaceutical Press, Royal Pharmaceutical Society of Great Britain; 2009. p. 3e12
2. Ahmad I, Aqil F and Owais M: Turning medicinal plants into drugs. *Modern Phytomed* 2006; 384:67-72.
3. Allergic Rhinitis in Ayurvedic perspective. Dr. Shrawan Kumar Sahu et. al. *World Journal of Pharmaceutical research*, volume 4, issue 8, 2192-2198.
4. Pharmaceutical Standardization and preliminary physico-chemical profile of *Shirisha Ashwagandhadi Avaleha* - A Herbo-mineral Compound Formulation. Dr. Parth Dave et. al. *Global J Res. Med. Plants & Indigen. Med.*, Volume 4(10): 209–215
5. Shailaja Srivastsava, 2009
6. Wallis TE. Text book of Pharmacognosy. 5th ed. New Delhi: CBS Publishers & Distributors., 2 002; 123- 32: 210-5.
7. Identification of Novel Anti-inflammatory Agents from Ayurvedic Medicine for Prevention of Chronic Diseases: "Reverse Pharmacology" and "Bedside to Bench" Approach. *Curr Drug Targets.*, 2011; 12(11): 1595-1653. <http://dx.doi.org/10.2174/138945011798109464>.
8. Anonymous. The Ayurvedic Pharmacopoeia of India. part 2, vol 2, Appendices 1st ed. New Delhi: Govt. of India Publication., 2008; 233-5.

9. Stahl E; Thin-layer chromatography a laboratory hand book .2nd edition. Springer-Verlag New York, 1969; p 125 -133.

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