

Review Study of Pharmacognosical Phytochemical Clinical Aspects of Rumex Vesicarius

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ABSTRACT

Chukra (Rumex Vesicarius) is one of such *Bhedan dravya* is mentioned in *Ayurvedic* texts. *Chukra (Rumex Vesicarius)* is classified under *Amla varga* in *Ashtanga Hrudaya* and in *Shakavarga* in *Nighantus*.^{15,16,17,18} It is *Amla* in *Rasa*, *Ushna* in *Veerya*, and *Amla* in *Vipaka*.¹⁹ It is *Vatahar* because of its *ushna*, *amla guna*, and also has actions like *Bhedi*, *Ruchya*, *Agnimandyahar*, *Vibandhahara*, *Aamahara*. Due to *Amla Rasa*, it is *Vatanulomaka* in nature²⁰. Hence, it can be used in *Malavashamba*.

This article is related to Pharmacognosical Phytochemical Clinical Aspects of *Rumex Vesicarius*. *Ayurveda* "the oldest science of life" aims at maintenance of positive health and treatment of the diseased. For both purposes it needs potent and efficient medicines. It is a common sense that the success or failure of the medicine largely depends on its potency. So to be sure about the potency of a medicinal preparation the question of its quality and standardization automatically comes into the scene.

Key Words: *Pharmacognosical, Chukra, Rumex Vesicarius*

Introduction :

Chukra (Rumex Vesicarius) is one of such *Bhedan dravya* is mentioned in *Ayurvedic* texts. *Chukra (Rumex Vesicarius)* is classified under *Amla varga* in *Ashtanga Hrudaya* and in *Shakavarga* in *Nighantus*.^{15,16,17,18} It is *Amla* in *Rasa*,

Ushna in *Veerya*, and *Amla* in *Vipaka*.¹⁹ It is *Vatahar* because of its *ushna*, *amla guna*, and also has actions like *Bhedi*, *Ruchya*, *Agnimandyahar*, *Vibandhahara*, *Aamahara*. Due to *Amla Rasa*, it is *Vatanulomaka* in nature²⁰. Hence, it can be used in *Malavashtambha*.

Constipation is a problem that affects between 2% and 27% of the world's population.²⁵ Many available drugs are costly and sometimes palatability also is a major problem. *Chukra* (*Rumex Vesicarius*) is classified under *Amla varga* in *Ashtanga Hrudaya* and in *Shakavarga* in *Nighantus*.^{15,16,17,18} It is *Amla* in *Rasa*, *Ushna* in *Veerya*, and *Amla* in *Vipaka*.¹⁹ It is *vatahar* because of its *ushna*, *amla guna*, and also has actions like *bhedi*, *ruchya*, *agnimandyahar*, *vibandhahara*, *aamahara*. Due to *amla rasa*, it is *Vatanulomaka* in nature.²⁰ Hence, it can be used in *Malavashtambha*.

Aim:

To Review the Pharmacognosical Phytochemical Clinical Aspects of Rumex Vesicarius

Objectives of the study:

1. To assess the posology aspect of *Chukra* (*Rumex vesicarius* L.)
2. To study pharmacovigilance aspect of *Chukra* (*Rumex vesicarius* L.)
3. To study detailed pharmacognosical, phytochemical, experimental and clinical aspect of *Chukra* (*Rumex vesicarius*).

Research Question:

Is *Chukra* (*Rumex vesicarius* L.) Patra Churna Capsule effective for Bhedan Karma ?

Drug Review

Drug Review Of Chukra (Rumex Vesicarius) :

- **Sanskrit name:** Chukra (चुक्र)
- **Botanical Name:** *Rumex vesicarius* Linn.
- **Synonyms:** चुक्रं , चुक्रक्रका, रोलरका, ळतलेधी

- **English name:** Bladder Dock, blister sorrel, country sorrel, rosy dock
- **Hindi name:** चूक (chooka), चुक्र (chukra), चुक्रक्रका (chukrika), रोलरका (lolika).
- **Urdu name:** tukhm hummaz
- **Telgu name:** chukka kura
- **Bengali name:** bun palung Marathi name: Ambat chukka Tamil name: cukkan-kirai
Assamee: Chuka sak Kannada: chukki soppu

Taxonomical classification:

Kingdom: Plantae- Plants Clade: Tracheophytes Clade: Angiosperms Clade:
Eudicots
Order: Caryophyllales

Family: Polygonaceae Genus: Rumex Species: R. vesicarius

Rasa Panchak:

Rasa: Amla, Madhur Veerya: Ushna Vipaka: Amla

Guna: vatahar, Ushna, Bhedi

Karma: bhedan, ruchya, agnimandyahar, vibandhahara, aamahara

- ✚ Rumex vesicarius Linn. is a tree used in Indian household and
- ✚ Ayurvedic medicine in India for a long time.
- ✚ This is a member of Polygonaceae family.
- ✚ It is commonly known as Chukra in Sanskrit and Chuka in Hindi.
- ✚ Bladder Dock is an annual, 10-30 cm high, branching from the base. It is usually cultivated all over India.
- ✚ Acharya Vagbhata has included it in „Amlavarga“ in Adhyay 10 of Sutrasthana.

Phytochemistry:

Anthraquinone, Glycosides, Flavonoids, Saponins

Parts used for medicinal purpose:

Leaves &

seeds:-



Morphology:

- ✚ Rumex vesicarius Linn. Annual, erect, glabrous, 6-12 in. high, branched from the root.
- ✚ Leaves 1-3 in. long, elliptic, ovate, or oblong, 3-5-nerved, base cuneate, cordate or hastate.
- ✚ Flowers monocious; inner perianth-segments membranous and reticulate in fruit, orbicular.
- ✚ Cultivated as a vegetable and for its medicinal properties, known sometimes as the Bladder Dock. It is said to be indigenous in the Western Panjáb.
- ✚ The leaves, seeds, and roots are employed in native medicine. (The Flora Of The Presidency Of Bombay Vol II By Cooke, Theodore.) Geographical distribution:

The plants are found all over India. It is observed that the plants mainly grow in the Northern Hemisphere. Specially in the middle part. It is also present in Mediterranean Europe, African countries like Egypt, India, etc.

Chukra in Samhita (Bruhatrayi):

1) Sushruta Samhita:

Chukra is not mentioned in Sushruta Samhita

2) Asthanga Hrudhaya:

Ashtanga Hruday Samhita mentions Chrukra in Sutrasthana Adhyay
10, Rasabhedhiya Adhyay

अम्लो धात्रीफलाम्लीकामातुलुङ्गाम्लवेतसम्
दाडिमं रजतं चुक्रं तक्रं पालेवतं दधि॥
(अ. ह. सू १०/२६)^{१५}

3) References in Nighantu:

Information about various properties, varieties, synonyms, action and indications of herbs are together collected in the Nighantus. Detail review of Chukra has been taken from following Nighantus:

4) Bhavaprakash Nighantu-

Chukra as been enlisted in „Shakavarga“ of Bhavaprakash Nighantu. It has synonyms as- Chukrika, Patramla, Shatavedhini, Chukra.

Is Madhur, has the effects- Vataghana kapha-pittakrut, it is Ruchya, when digested, it is Laghutara, is used along with Brinjal to enhance the flavor.

चुक्रिका स्यात्तु पत्राम्ला रोचनि शतवेधिनी।
चुक्रा तु अम्लतरा स्वाद्वी वतघ्नी कफपित्तकृत्।
रुच्या लघुतरा पाके वृन्ताकेनातिरोचनी॥

भा. प्र. पू. १०/२०¹⁶

2) Rajavallabha Nighantu

चुक्रकं दुर्जरं भेदी वातजित्पित्तलं गुरु।

(राजवल्लभ नि. ३/७१)¹⁷

Rajavallabh Nighantu enlists Chukra in Shakavarga. It is heavy to digest, does bhedan karma, balances Vatadosha and slightly increases Pitta dosha. Is mentioned as Guru dravya.

3) Dravyagunasangraha Nighantu

चुक्रकं दुर्जरं भेदी अम्लपित्तकरं गुरु।

(द्रव्यगुणसंग्रह नि.)¹⁸

Dravyagunasangraha Nighantu enlists Chukra in Shakavarga. It is heavy to digest, does bhedan karma, balances Vatadosha and slightly increases Pitta dosha. Is mentioned as Guru dravya.

4) Nighantu Adarsh 19

Nighantu Adarsha says Chukra is Amla in Rasa, Ushna in Veerya
, and Amla in Vipaka.

Chukra from Indian medicinal plants:

- ✚ Chukra (*Rumex vesicarius* Linn.) has not been mentioned in Indian Medicinal Plants.
- ✚ Chukra from Indian Materia Medica:
- ✚ Chukra (*Rumex vesicarius* Linn.) has not been mentioned in Indian Materia Medica
- ✚ Chukra from Ayurvedic pharmacopoeia of India
- ✚ Chukra (*Rumex vesicarius* Linn.) has not been mentioned in API.

Rumex veicarius Linn.

This Study has Two Parts:

a) Pharmacognostical study:

b) Clinical study:

1. Literary data –

The literary source of present data was obtained from classical texts of Ayurveda, modern texts and published articles.

a) Pharmacognostical study:

Authentication and Standardization of drug was done from certified laboratory.

Organoleptic Test of Fresh *Chukra Patra* (*Rumex vesicarius* L.)

Organoleptic Test	Observations
<i>Sparsha</i> (Touch)	<i>Shlakshna</i> (Soft)
<i>Rupa</i> (Appearance, colour)	Green
<i>Rasa</i> (Taste)	<i>Amla</i> (Sour)
<i>Gandha</i> (odour)	Sour and like vegetables
<i>Shabda</i> (sound if any)	None

Macroscopic Features:

Leaves - Stalked leaves are triangular to ovate leaves which are truncate or cordate at the base and about 5–10 cm long, with entire margins.

Flowers- Flower racemes are simple or branched. Flower stalks are solitary, bearing twin flower. Valves of fruit-bearing primary flower nearly circular, 1.2-1.8 cm long and broad, without a marginal nerve, entire, net-veined. Flowering: March-May.

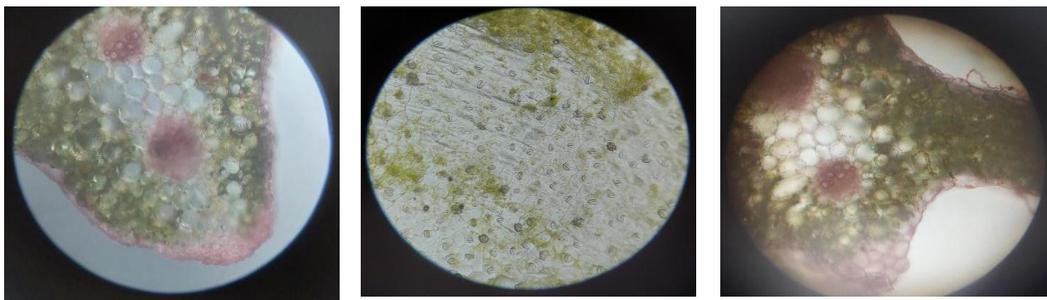
Fruit- Fruit is somewhat or hardly smaller, folded together with the primary one and hidden by it. Nut of primary flower is 3.4-4.7 mm long, greyish-brown, that of secondary flower 2.8-4 mm, darker brown.

Microscopic Features:

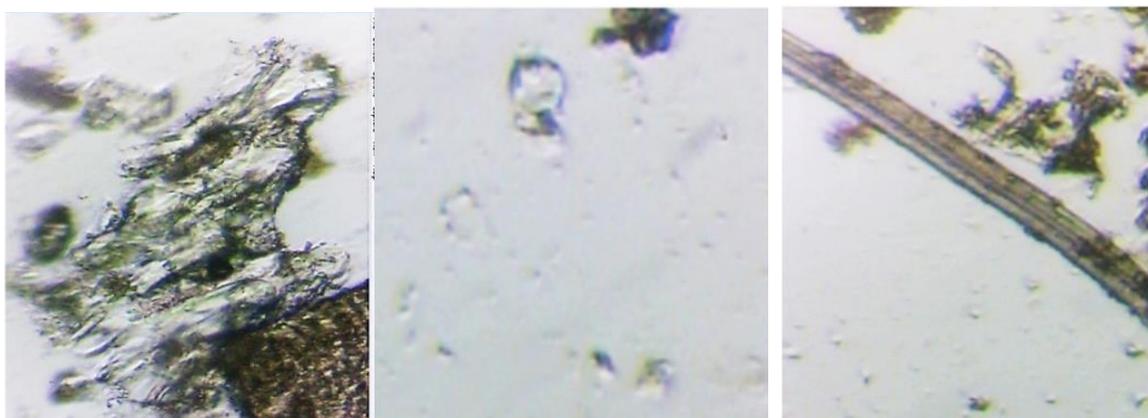
Upper epidermis was single layer of thin walled closely arranged cells and covered externally by a layer of cuticle. The upper epidermis was not a continuous layer but slight projection is seen in the centre .

Lower epidermis: Lower epidermis was single layer of parenchymatous cells which is interrupted by the stomata. The type of stomata is Anisocytic type of stomata. Mesophyll:

The region between the upper and lower epidermis is constituted by mesophyll. The mesophyll was formed of chlorenchymatous cells and is the seat of photosynthesis. Mesophyll was differentiated into upper palisade parenchyma and lower spongy parenchyma. Palisade parenchyma consists of two or three layers of compactly arranged cells in perpendicular to the surface. Spongy parenchyma consists of loosely arranged cells having air filled spaces in between. The chloroplast are most abundant in Palisade cells than spongy parenchyma.



Powder microscopy:



Parenchym

Calcium Oxalate crystals

Fibers

Preparation of *Chukra Patra Churna Capsules* (CPCC):-

Standard Operating Procedure (S.O.P.) for the preparation of drug=

A) Authentication:

Fresh plants of *Chukra* (Plants of *Rumex vesicarius* Linn.) were procured from source (Farmer). And authentication was done at certified lab presenting the herbarium.

B) Standardization:

Standardization of drug was done after preparation of the drug.

For the present study the drug *Chukra Patra Churna Capsules* was prepared in pharmacy and both *Chukra patra Churna* and *Chukra Patra Churna Capsules* were pharmacognostically authenticated.

Both *Chukra patra Churna* and *Chukra Patra Churna* Capsules were subjected to various analytical experiments such as

1. Determination of foreign matter
2. Total Ash
3. Water soluble Ash
4. Acid insoluble Ash
5. Water soluble Extractive
6. Alcohol Soluble Extractive
7. TLC

Determination of foreign matter

Drugs should be free from moulds, insects, animal faecal matter and other contaminations such as earth, stones and extraneous material. Foreign matter is material consisting of any or all of the following :- (1) Inparticular, parts of the organ or organs from which the drug is derived other than the parts named in the definition or for which a limit is prescribed in the individual monograph. (2) Any organ or part of organ, other than those named in the definition and description.

Determination Of Foreign Matter

Weigh 100 –500 g of the drug sample to be examined, or the minimum quantity prescribed in the monograph, and spread it out in a thin layer. The foreign matter should be detected by inspection with the unaided eye or by the use of a lens (6x). Separate and weigh it and calculate the percentage present.

Total Ash

Incinerate about 2 to 3 g accurately weighed, of the ground drug in a tared platinum or silica dish at a temperature not exceeding 450° until free from carbon, cool and weigh. If a carbon free ash cannot be obtained in this way,

exhaust the charred mass with hot water, collect the residue on an ashless filter paper, incinerate the residue and filter paper, add the filtrate, evaporate to dryness, and ignite at a temperature not exceeding 450°. Calculate the percentage of ash with reference to the air-dried drug.

Water soluble Ash

Boil the ash for 5 minutes with 25 ml of water; collect insoluble matter in a Gooch crucible, or on an ashless filter paper, wash with hot water, and ignite for

15 minutes at a temprature not exceeding 450°. Substract the weight of the insoluble matter from the weight of the ash; the difference in weight represents the water-soluble ash. Calculate the percentage of water-soluble ash with reference to the air-dried drug.

Acid insoluble Ash

Boil the ash obtained in (2.2.3) for 5 minutes with 25 ml of dilute hydrochloric acid; collect the insoluble matter in a Gooch crucible, or on an ashless filter paper, wash with hot water and ignite to constant weight. Calculate the percentage of acid-insoluble ash with reference to the air dried drug.

Water soluble Extractive

Macerate 5 g of the air dried drug, coarsely powdered, with 100 ml of chloroform water of the specified strength in a closed flask for twenty-four hours, shaking frequently during six hours and allowing to stand foreighteen hours. Filter rapidly, taking precautions against loss of solvent, evaporate 25 ml of the filtrate to dryness in a tared flat bottomed shallow dish, and dry at 105°, to constant weight and weigh. Calculate the percentage of alcohol-soluble extractive with reference to the air-dried drug

Alcohol Soluble Extractive

Macerate 5 g of the air dried drug, coarsely powdered, with 100 ml of Alcohol of the specified strength in a closed flask for twenty-four hours, shaking frequently during six hours and allowing to stand for eighteen hours. Filter rapidly, taking precautions against loss of solvent, evaporate 25 ml of the filtrate to dryness in

a tared flat bottomed shallow dish, and dry at 105°, to constant weight and weigh. Calculate the percentage of alcohol-soluble extractive with reference to the air-dried drug

TLC

Thin-layer chromatography is a technique in which a solute undergoes distribution between two phases, a stationary phase acting through adsorption and a mobile phase in the form of a liquid. The adsorbent is a relatively thin, uniform layer of dry finely powdered material applied to a glass, plastic or metal sheet or plate. Glass plates are most commonly used. Separation may also be achieved on the basis of partition or a combination of partition and adsorption, depending on the particular type of support, its preparation and its use with different solvent. Identification can be effected by observation of spots of identical R_f value and about equal magnitude obtained, respectively, with an unknown and a reference sample chromatographed on the same plate. A visual comparison of the size and intensity of the spots usually serves for semi-quantitative estimation.

Preparation:

Preparation of CPCC was done in institute pharmacy.

1. Total , 200 bunches of *Chukra (Rumex vesicarius L.)* (Each bunch weighing approximately 350gm) was purchased from the cultivator and authentication done.
2. Fresh drug was then processed as follow-
 - a. The roots, floral part if any, other infiltrated weeds were discarded and only leaves were taken.

- b. They were cleaned and dried under the shade.
3. Fine powder i.e. *churna* was prepared in pulverizer machine and sieved through mesh no. 85 to obtain very fine powder according to API Standards.
 4. Capsuling was done. Every capsule contained *Choorna* weighing 500 mg.
 5. It was stored at room temperature in dry place.
 6. Standardization of final product was done.
 7. the drug was packed in polythene bags according to the dose required and was dispensed to the patient accordingly on day 0 and day 7.

Observations

Organoleptic test of raw material:

Showing Organoleptic Test of Fresh *Chukra Patra*
(*Rumexvesicarius* L.)

Organoleptic Test	Observations
<i>Sparsha</i> (Touch)	<i>Shlakshna</i> (Soft)
<i>Rupa</i> (Appearance, colour)	Green
<i>Rasa</i> (Taste)	<i>Amla</i> (Sour)
<i>Gandha</i> (odour)	Sour and like vegetables
<i>Shabda</i> (sound if any)	None

Showing Organoleptic Test of *Choorna* of *Chukra Patra* (*Rumexvesicarius* L.)

Organoleptic Test	Observations
<i>Sparsha</i> (Touch)	Slightly coarse
<i>Rupa</i> (Appearance, colour)	Green
<i>Rasa</i> (Taste)	<i>Amla</i> (Sour) and slightly salty
<i>Gandha</i> (odour)	Sour
<i>Shabda</i> (sound if any)	None

Analytical Report: Ambatchuka Churna

(*Rumex vesicarius*Linn.)

TEST	RESULT
APPEARANCE	Fine Dry Powder
COLOUR	Green
ODOUR	Herbaceous
TASTE	Sour & Sweet
FOREIGN MATTER	Nil
ASH	18.95 %
A I A	0.76 %
A S E	6.12 %
W S E	18.24 %

MACROSCOPY

Parenchyma Calcium Oxalate crystals Fibers



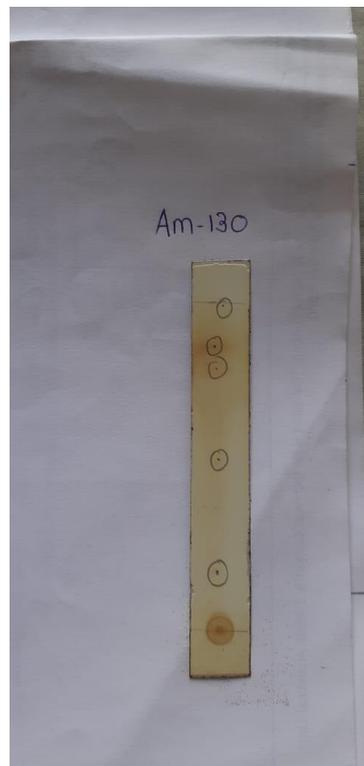
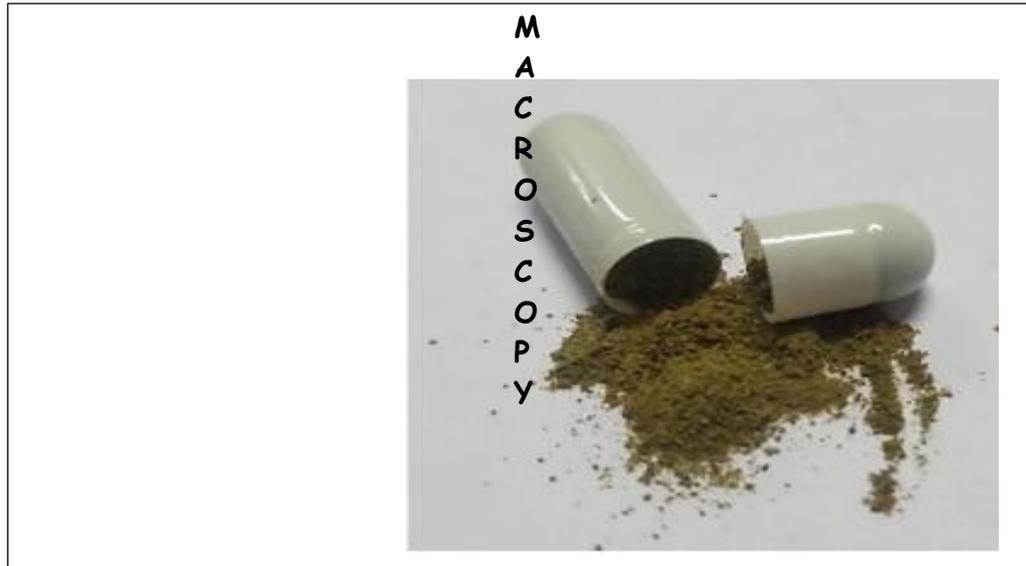
Showing Organoleptic Test of Capsules of *Chukra Patra Choorna*

(*Rumex vesicarius L.*)

Organoleptic Test	Observations
<i>Sparsha</i> (Touch)	Soft
<i>Rupa</i> (Appearance, colour)	White
<i>Rasa</i> (Taste)	No vivid taste
<i>Gandha</i> (odour)	No vivid odour
<i>Shabda</i> (sound if any)	None

AMBATCHUKA CHURNA CAPSULE (*Rumex vesicarius Linn.*)

TEST	RESULT
APPEARANCE	O-O size capsules
COLOUR	Capsule : White, Powder : Green
ODOUR	Herbaceous
TASTE	Sour & Sweet
FOREIGN MATTER	Nil
AVERAGE WEIGHT OF CAPSULE	520 mg
UNIFORMITY OF WEIGHT	Complies the test
ASH	18.87 %
A I A	0.72%
A S E	6.35 %
W S E	18.15 %



TLC plate of *Chukra patra churna* (*Rumex vesicarius* Linn.) TLC

Analysis report

Stationary phase-Toluene ; Ethyl Acetate; Formic acid (6:3:1)	Mobile Phase- Ethanol Extract
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Eye Observed

Sr.No.	RF Value	Colour
1.	0.78	Yellow

254 nm observed

Sr.No	RF Value	Colour
1	0.78	Yellow

365nm observed

Sr.No	RF Value	Colour
1.	0.24	Yellow
2.	0.51	Yellow
3.	0.73	Yellow
4.	0.78	Yellow
5.	0.89	Yellow

Iodine Chamber

Sr.No	RF Value	Colour
1.	0.24	Brown
2.	0.51	Brown
3.	0.73	Brown
4.	0.78	Brown
5.	0.89	Brown

Discussion

This study was conducted to assess *Bhedan Karma* of *Chukra Patra* (*Rumex vesicarius* L.) *Choorna Capsule* (CPC Capsule), in *Malavashtambha* (Functional Constipation).

1. Pharmacognostic Discussion:

The raw drug *Chukra* was collected directly from cultivator and then authenticated the sample from certified laboratory. Fresh drug was then processed as follow-

1. The roots, floral part if any, other infiltrated weeds were discarded and only leaves were taken.
2. They were cleaned and dried under the shade.
3. After the drug was dried properly, *Churna* was made according to SOP of *Churna* making. Capsuling (approximately 500mg each) was done.
4. Prepared *Churna* and capsules were authenticated and standardized from Certified Laboratory.

1. Analytical Tests of CPC Capsules and *Churna* show that, both of them match to Standard Parameters. Prepared CPC Capsules were Safe to use in Patients.

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