

Efficacy of *Chandan Bala Lakshadi Tail* Matra Basti as Adjuvant Therapy in the Anorectal Ailments: A Case Series

ABHISHEK DATTATRAY MAVALE¹, DEVYANI DASAR², NAVEEN SINGH³

(CC) BY-NC-ND

ABSTRACT

Ayurveda mentions several anorectal ailments, among which are *Bhagandara* (Anal Fistula), *Guda vidhradhi* (Rectal Abscess), *Parikartika* (Anal Fissure), and *Arsha* (Haemorrhoid), which are the most common. These illnesses may have several underlying causes and may result in a wide variety of symptoms. Present case series discusses a total of five instances in which majority of the patients were between the ages of 20 and 80 years. Pain and burning sensations during and after defecation, as well as perineal haemorrhage and hard stools, were prevalent complaints among these patients. Through local and physical examination, three anorectal ailments were detected: *Arsha* (internal external haemorrhoids), *Bhagandara* (anal fissure), and *Parikartika* (fissure in ano). Ultimately, anorectal procedures were carried, such as haemorrhoidectomy and Lord's anal dilatation with *Kshara Sutra* ligation. Anorectal concerns might impact a person's quality of life as they are unsettling, painful, and occasionally even life-altering. In the early stages, current therapy includes the use of soothing creams, gels, oral analgesics, and stool softeners, as well as surgical interventions such as sphincterotomy, fissurectomy, and Lord's dilatation. In anorectal conditions like *Parikartika* (anorectal fissure), *Bhagandara* (anorectal fistula), and *Arsha* (haemorrhoids), a more effective alternative treatment must be developed. *Chandan bala Lakshadi Tail Matra Basti* is beneficial in reducing irritation, spasm, and the perception of pain as well as bleeding per rectum and anal inflammation.

Keywords: Anorectal fistula, Ayurvedic direction, Wound healing

INTRODUCTION

Ayurveda is a life science [1]. According to Acharya Charak, the primary goals of an *Ayurveda* is to preserve a person's health and treat illnesses in the sick [2]. People are sacrificing their personal time in order to do this, which is a major factor in the decline in health. In addition to working long hours and working both day and night shifts, the majority of people frequently experience poor and unsatisfactory sleep. All these unhealthy habits cause vitiation of Vata, Pitta, and Kapha Dosha. Intellectual mistake, or *pradanyaparadha*, is one of the potential causes of anorectal diseases [3]. This leads to an attraction to bad diets and lifestyles, which are major contributors to the development of anorexia. *Ahitakara Ahara* and *Vihara* are the primary causes of *Gudagata Vikara* (anorectal diseases). *Gudagata Vikara* in *Ayurveda* describes conditions affecting the anus and/or rectum. *Arsha* (haemorrhoids), *Bhagandara* (fistula-in-ano), *Parikartika* (fissure in ano), *Guda Kandu* (pruritus ani), and other terms are included in the *Gudagata rog* [4]. Both contemporary and *Ayurvedic* medicine have recommended a wide range of therapeutic approaches *Ayurvedic* medicine prescribes medications, *Kshara karma* (caustic alkali), *Agni karma* (cautery), and *Shastra karma* (surgery) [5].

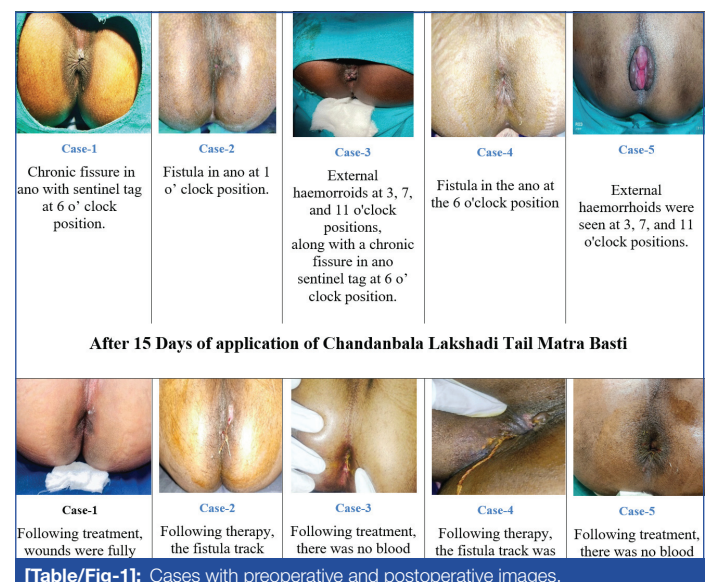
Case 1

A 24-year-old female patient arrived at the Shalya Outpatient Department (OPD) complaining of hard stool, rectal bleeding, discomfort, and burning after defecation for the last six months. Following a rectal examination, a chronic fissure in the anus was discovered with a posterior sentinel tag at both the anterior and posterior midlines. Following all normal investigations, Lord's anal dilatation with excision of tag as a surgical intervention was selected [Table/Fig-1]. In the Shalyatantra Department of MGACH and RC, the procedure involved Lord's anal dilatation, tag removal with thermal cauterization, under spinal anaesthesia. Painful faeces from sphincter spasm and fissure

existence in *Parikartika* cases make the patient uneasy and prevent them from passing stool. Therefore, pain after surgery decreases as a result of the anal sphincters relaxing and the removal of damaged tissue from the fissure bed by thermal cauterization, both of which promote complete and healthy recovery [6].

Case 2

A 60-year-old male patient arrived with symptoms of pain both during and after defecation from one year, a boil in the perianal region from six months, and pus coming from the boil for two months. After conducting all necessary tests, a digital rectal examination found a persistent fistula with an internal opening at the 1 o'clock position. Under spinal anaesthesia, the Shalyatantra Department performed Lord's anal dilatation with probing and *Kshara Sutra* Liagation as surgical care [Table/Fig-1] (Case 2).



Case 3

A 55-year-old male patient visited the Shalya OPD complaining of constipation, intermittent bleeding post-faeces from one year, and discomfort both during and after defecation. Proctoscopy was not performed during the digital rectal examination due to intense spasm. In anal region third degree interno external haemorrhoids were seen during operation at 1, 3, 5, 7, and 11 o'clock positions, along with a chronic fissure in ano sentinel tag at 6'o clock position. In anal region third degree interno external haemorrhoids were seen during operation at 1, 3, 5, 7, and 11 o'clock positions, along with a chronic fissure in ano sentinel tag at 6'o clock position. Following all necessary tests [Table/Fig-2], the Shalyatantra Department performed Lord's anal dilatation with tag removal by thermal cauterisation and open haemorrhoidectomy under spinal anaesthesia [Table/Fig-1] (Case 3).

Case 4

A 76-year-old man who came as a patient at the Shalya OPD complained of pus discharge from the anal area, as well as discomfort and burning during defecation from six months. A digital rectal examination found a persistent fistula in the anus at the six o'clock position. After performing all necessary tests, under spinal anaesthesia [Table/Fig-1] (Case 4), Lord's anal dilatation with probing, and Kshara Sutra Ligation were carried out in the Shalyatantra Department of MGACH and RC.

Case 5

A 61-year-old male patient consulted the Shalya OPD with symptoms of burning and intermittent discomfort in the anal region,

as well as a feeling of a mass there when strained from 4-5 months. External haemorrhoids were seen at the 3, 7, and 11 o'clock positions during a digital proctoscopic examination, along with mucosal prolapse at 7 o'clock and internal haemorrhoids at 1 and 5 o'clock. In the Shalyatantra Department of MGACH and RC, Lord's anal dilatation with open haemorrhoidectomy was performed after all normal investigations were completed under spinal anaesthesia [Table/Fig-1] (Case 5).

Following the surgery for each case, the common treatment plan detailed below was carried out [Table/Fig-3]. All five patients' metrics have shown significant improvement. After the administration of *Chandan bala lakshadi tail* matra basti, significant differences were seen in terms of pain, burning sensations, anal spasms, per rectal bleeding, and wound healing [Table/Fig-4,5] [6-9]. None of the patients showed any signs of wound discharge before surgery or after 1, 5, 7, and 15 days, respectively.

DISCUSSION

The same postoperative care was provided for all five cases, and analysis of the evaluation criteria revealed noteworthy findings. Painful faeces from sphincter spasm and fissure existence of fissures in Parakartika cases make the patients uneasy and prevent them from passing stool. Therefore, pain after surgery decreases as a result of the anal sphincters relaxing and the removal of damaged tissue from the fissure bed by thermal cauterisation, both of which promote complete and healthy recovery [10]. Burning and discomfort were dramatically reduced. Furthermore, there was no evidence of rectal

Investigation	Case 1	2	3	4	5	Normal range
Complete Blood Count (CBC)	Hb-9.0	Hb-10.0	Hb-12.1	Hb-12.8	Hb-15	Male: 14-16 gm% Female: 11-14 gm%
	TLC-4000	TLC-10700	TLC-3400	TLC-8400	TLC-9800	4000-11000/cumm
	DLC-	DLC-	DLC-	DLC-	DLC-	
	N-58	N-60	N-52	N-62	N-68	40.75%
	L-30	L-32	L-42	L-28	L-27	20.45%
	E-02	E-03	E-02	E-01	E-01	1.6%
	M-03	M-05	M-04	M-03	M-04	2.10%
	B-00	B-00	B-00	B-00	B-00	0.2%
	RBC-4.52	RBC-5.52	RBC-4.12	RBC-3.92	RBC-5.08	4.5-5.5 million
	Plt-2,69,000	Plt-1,80,000	Plt-1,50,000	Plt-3,39,000	Plt-2,06,000	150000-450000 mm
	PCV-32.7	PCV-34.7	PCV-36	PCV-38.7	PCV-44.5	Male-42-52% Female- 36-48%
	ESR-20	ESR-22	ESR-18	ESR-9	ESR-30	Male- 0.15 mm/hr Female- 0.20 mm/hr
	MCV-83	MCV-90	MCV-87	MCV-63	MCV-88	80-100 fl
MCH-22.1	MCH-20.1	MCH-29.4	MCH-18.1	MCH-28.5	26.5-33.5 pg	
MCHC-31.6.7	MCHC-28.7	MCHC-35.7	MCHC-30.7	MCHC-32.6	31.5-35.5 g/dL	
Bleeding Time (BT)	1 min 60	1 min 60	1 min 45	1 min 20	1 min 60	1-3 min
Clotting Time (CT)	2 min 55	3 min 50	6 min 35	2 min 60	3 min 20	3.9 min
Prothrombin Time (PT)	12.5	13.2	12.6	13.8	12.1	11.9 sec
International Normalised Ratio (INR)	1.05	1.11	1.05	1.17	1.10	1.0-1.5
Random Blood Sugar (RBS)	96	112	120	262	121	<140 mg/dL
HIV and HbsAg	Neg. and Non reactive	Neg. and Non reactive	Neg. and Non reactive	Neg. and Non reactive	Neg. and Non reactive	
Urine (Routine and Microscopy)	No abnormality present	No abnormality present	No abnormality present	No abnormality present Expect 0-2 pus cells	No abnormality present	
Liver Function test (LFT)	Within normal limits	Within normal limits	Within normal limits	Within normal limits	Within normal limits	
Kidney Function test (KFT)	Within normal limits	Within normal limits	Within normal limits	Within normal limits	Within normal limits	

[Table/Fig-2]: Investigations performed.

Hb: Haemoglobin; TLC: Total leukocyte count; DLC: Differential leukocyte count; N: Neutrophil; L: Lymphocyte; E: Eosinophil; M: Monocyte; B: Basophil; RBC: Red blood cell; Plt: Platelet; PCV: Packed cell volume; ESR: Erythrocyte sedimentation rate; MCV: Mean corpuscular volume; MCH: Mean corpuscular haemoglobin; MCHC: Mean corpuscular haemoglobin concentration

Sr. no.	Management	Duration
Antacid	Inj. Pantaprazole 40 mg- i.v.-OD	From POD-0 to POD-01
Antibiotics	Inj. Cefotaxime 1 gm i.v.- BD i.v. Metronidazole 100 mL (500 mg)- TDS	For POD-0 and 1
	After eating, Take two tabs of Triphala Guggul with a cup of moderately warm water	From POD-07 for 15 days
I.v. Fluids	i.v. RL/DNS/NS -500 mL as maintenance	For POD- 0 and 1
Ayurvedic management	Chandan bala lakshadi tail	10 mL for POD-0 and 5 mL from POD-1 twice in day to POD-15
Laxatives	Syp. Duphalac 30 mL HS	POD-0 to POD-4
	Syp. Abhyarista 20 mL-BD with cup of Luke warm water	From POD-5
	Panchsakar churna 5 gm with cup of Luke warm water-BD	From POD-5
Analgesia	Inj. Diclofenac sodium 75 mg IM Diclofenac suppository (100 mg) for local application	SOS
	Tab. {Paracetamol (325 mg), Diclofenac (50 mg) and (serratiopeptidase 15 mg)} 1 Tab SOS	
Ahara	Soft diet	POD-0
	High fibre food and normal diet (avoid spicy food)	From POD-1
Vihara	Sitz bath with luke warm water-BD	From POD-1

[Table/Fig-3]: Postoperative maintenance.

POD: Postoperative day; HS: Hora somni (at bed time); BD: Bis in Die (Twice a day); TDS: Terdie sumendum (Three times a day); IM: Intramuscular; SOS: Si opus sit (as and when required)

Sr. no.	Assessment parameter	Grade	Assessment criteria
1	Pain [6] as per VAS scale	0	No pain
		1	Mild (1-3)
		2	Moderate (4-6)
		3	Severe (7-10)
2	Burning sensation [7]	0	No burning sensation
		1	(Mild degree) Burning feeling 15 minutes after bowel movements
		2	(Moderate degree) Burning for 15 to 30 minutes after bowel movements
		3	Severe burning that is intolerable and lasts longer than 30 minutes both before and after bowel movements
3	Spasm [7]	0	Normal (1 finger can pass)
		1	With extreme pain, a finger can be passed.
		2	No finger can be passed
4	Bleeding per rectum [7]	0	No bleeding
		1	Bleeding during defecation up to 10 drops
		2	Bleeding during defecation 10 to 20 drops
		3	Splash in a pan
5	Wound healing [8]	0	Complete wound healing and a healthy scar
		1	Wound that has partially healed and healthy granulation tissue
		2	Cleaned wound without slough/discharge
		3	Wound with discharge
6	Wound discharge [9]	0	No discharge
		1	Serous discharge
		2	Mucous discharge
		3	Mucopurulent discharge

[Table/Fig-4]: Assessment criteria [6-9].

cause of Anorectal ailments. Based on cellular absorption of the medication, local application of *Chandanbala lakshadi Tail* matra basti operates as *Snehan* (oleation), *Vranaropan cicatrisation*, *Raktaprasadan* (blood function and structure maintenance and regulation), *Dahaprashaman mahakshaya* (pacifying burning sensation), improving the healing of anal fissure wounds. It helps to calm the burning experience because of its cooling effects. The ingredients of *Chandan bala lakshadi Tail* ingredients include astringent, anti-inflammatory, and soothing properties that aid in the wound healing of Anorectal ailments [9].

Chandan (*Santalum album*): According to Ayurveda, Chandan's astringent properties aid in the healing of wounds caused by Kashaya rasa. It is widely accepted that Chandan controls its ability to reduce inflammation through a variety of mechanisms. Its radical scavenging properties reduce fissure-in-ano tenderness, while its antioxidant properties suppress the oxidising enzyme 5-lip oxygenase. Many gram-positive bacterial strains alongside certain gram-negative bacterium strains were identified as being resistant to the antibacterial properties of Chandan (*Santalum album*) oil [11].

Yastimadhu (*Glycyrrhiza glabra*): The phenolic component in the ethanolic extract, which possesses considerable free radical scavenging and hydrogen-donating characteristics, is responsible for its antioxidant activity. Strong antibacterial activity is reported in the yasthimadhu root extract as it contains alkaloids, flavonoids, and saponins [12].

Nagkeshar (*Mesua ferrea*): Mesua ferrea's Nagkeshar has an astringent flavour. According to a recent study, xanthones, which are advantageous for inflammation prevention and may lessen pain, are present in *Mesua ferrea*. The astringent, anti-inflammatory, and antiulcerogenic properties of Laksha (*Laccifer lacca*) help to treat ulcers and stop bleeding from fissure beds [13].

Ashwagandha (*Withania somnifera*) and Nisha (*Curcuma longa*): Both Ashwagandha (*Withania somnifera*) and Nisha (*Curcuma longa*) both have anti-inflammatory and shotha har effects. Turmeric's main constituents, flavonoids, curcumin, and other volatile oils, such as tumerone and zingiberone, are important in imparting antioxidant and anti-inflammatory action [14].

Devdaru (*Cedrus deodara*): Due to its anti-inflammatory, anti-microbial, and wound-healing characteristics, devdaru oil is quite successful in the management of infected wounds. Due to the presence of acetylcholine, nicotine, and serotonin in Devdaru, it has a spasmolytic effect which significantly reduces spasms [15,16].

Shunthi (*Zingiber officinale*): Shunthi's antioxidant properties, which are beneficial for wound healing as a result of its gingerol, shogaol, and other related phenolic ketone derivatives, might be effective in the present case series. In traditional Ayurvedic texts, shanthi (*Zingiber officinale*) has shulaprashamana (analgesic) properties. Due to its astringent qualities, bala (*Sidacordifolia*) relieves local discomfort and is beneficial for wound healing [17].

Usheer (*Vetiveria zizanioides*): Usheer (*Vetiveria zizanioides*) has been referenced in several Ayurvedic texts for its antispasmodic, antibacterial, and cooling properties. Because Rasna (*Plucheanaloeolata*) contains a higher concentration of phenolic and ascorbic acid, which combat inflammation, it is effective in reducing pain, spasm, and discomfort in Anorectal illnesses [18,19].

Musta (*Cyperus Rotundus*): Wound healing is aided by the tannins, flavonoids, and polyphenols found in the chemical extract of musta. Musta has antiallergic properties that might minimise inflammation in the perianal area. The potency of the plants Sheeta (cold), Kashaya (astringent), Musta haskatu (pungent), and Tikta (bitter). It works well to relieve the burning sensation in the anal area in ano [20-22].

Katurohini (*Picrorhiza kurra*) and Kusta (*Saussurealappa*): Antibacterial and antioxidant attributes exist in katurohini (*Picrorhiza*

haemorrhage. Changes in Ahara and Vihara, leads to changes in Agni Dushti, which results in constipation, which is the main

Sr. no.	Assessment		Case 1	Case 2	Case 3	Case 4	Case 5
1	Pain	Preoperative day	3	2	1	2	3
		POD-1	1	1	1	1	2
		POD-5	1	1	0	1	1
		POD-7	0	0	0	0	0
		POD-15	0	0	0	0	0
2	Burning sensation	Preoperative day	3	3	3	3	3
		POD-1	1	1	1	0	1
		POD-5	0	0	0	0	0
		POD-7	0	0	0	0	0
		POD-15	0	0	0	0	0
3	Spasm	Preoperative day	1	1	0	0	1
		POD-1	0	0	0	0	0
		POD-5	0	0	0	0	0
		POD-7	0	0	0	0	0
		POD-15	0	0	0	0	0
4	Bleeding per rectum	Preoperative day	1	0	1	0	2
		POD-1	0	0	0	0	1
		POD-5	0	0	0	0	1
		POD-7	0	0	0	0	0
		POD-15	0	0	0	0	0
5	Wound healing	POD-1	2	2	2	2	2
		POD-5	1	1	1	1	1
		POD-7	1	1	1	1	1
		POD-15	1	1	1	1	1
6	Wound discharge	Preoperative day	1	1	1	1	2
		POD-1	1	0	0	1	1
		POD-5	0	0	0	0	1
		POD-7	0	0	0	0	0
		POD-15	0	0	0	0	0

[Table/Fig-5]: Assessment parameters.

kurra) Kusta (*Saussurealappa*), which has calming, ulcer-fighting, and spasmolytic properties, is highly effective in treating anal fissure. Two naturally occurring compounds that are antibacterial are costunolide and dehydrocostus lactone and aid in preventing bacteria from growing in wounds [23,24].

Manjishta (*Rubia cordifolia*): Manjishta (*Rubia cordifolia*) extracts' antioxidant capacities were also evaluated, and they proved useful in in-vivo studies on wound healing. Manjishta (*Rubia cordifolia*) has both Raktaprasadhak and Vranaropak properties, in keeping with Ayurvedic theory [25].

Teela Tail (sesame oil): Teela Tail (sesame oil), a substance with Guru-Snigdha Guna and antibacterial abilities, reduces Vata's Rukshata. Teela Tail's amount of tannin gives it an antibacterial and astringent nature that aids in the healing of Vrana [26].

All of the aforementioned Tila Tail attributes aid in the healing of anal region wounds. Chandan bala lakshadi tail is a local implementation used in the conservative management of anorectal disorders. Patients with Tail Matra basti had pain alleviation in the anal area. Earlier studies have been done on chandan bala lakshadi tail as pichu in only parikartika (Fissure-in ano), but the current case series focuses on the utility of chandan bala lakshadi as basti in all types of anorectal ailments [9].

CONCLUSION(S)

Chandan bala lakshadi Tail has been shown to be useful in reducing discomfort, inflammation, and anorectal bleeding, spasm, as well as wound healing in the anorectal area. Additionally, Chandan bala lakshadi Tail has antiulcer, anti-inflammatory, and skin regeneration abilities. Consequently, it can be said that this oil is beneficial for

treating anorectal ailments. The use of Chandan bala lakshadi Tail to treat anorectal ailments has not been associated with any complications or adverse effects. In the future, case-control studies and randomised clinical trials should be performed to verify the effectiveness of the current Ayurvedic treatment.

REFERENCES

- Acharya Priyavata Sharma. Charaka Samhita, 1st Edition, Delhi: Chaukhambha Sanskrit Pratishthan. 2007. Cha. Su. 1/43; p.13.
- Acharya Priyavata Sharma. Charaka Samhita, 1st Edition, Delhi: Chaukhambha Sanskrit Pratishthan. 2007; Cha. Su. 30/26, p. 447.
- Acharya Priyavata Sharma. Charaka Samhita, 1st Edition, Delhi: Chaukhambha Sanskrit Pratishthan. 2007; Cha. Sha. 1/ 100; p. 693.
- Sharma R, Kaur A, Mittal S, Goyal R, Neki NS. Clinical study of perianal disorders and their management: A study of 200 cases. Int J Med Health Res. 2017;3(3):03-05.
- Sharma A. Samhita S. Ch. no 2nd Edition, Varanasi: Chaukhambha Surbharti Prakashana. 2010; Su. Chi. 6/3, p.225.
- Jamison RN, Gracely RH, Raymond SA, Levine JG, Marino B, Herrmann TJ, et al. Comparative study of electronic vs. paper VAS ratings: A randomized, crossover trial using healthy volunteers. Pain. 2002;99(1-2):341-47. Doi: 10.1016/s0304-3959(02)00178-1. PMID: 12237213.
- Khanna V, Raina A, Sharma A, Pargotra PP. Critical analysis of Kasisadi Ghrita in Parikartika (Fissure-In -Ano). Ayushdhara. 2016;3(3):725-27.
- Shiralkar MV, Shiralkar DM, Krushnadev S, Tamhane V, Wagh R. To evaluate the effect of yashti-madhu-ghrita application in post-operative management of agnidagha vrana in arshas. Ayushdhara. 2016;2(5):315-23.
- Badwe Y, Pendam K. Study the effect of chandanbalalakshadi Taila Pichu in parikartika with special reference to fissure- in-ano- A pilot study. Ayushdhara. 2020;7(1):2545-52.
- Konsten J, Baeten CG. Hemorrhoidectomy vs. Lord's method: 17-year follow-up of a prospective, randomized trial. Dis Colon Rectum. 2000;43(4):503-06. Doi: 10.1007/BF02237194. PMID: 10789746.
- Shamsi TN, Parveen R, Afreen S, Azam M, Fatma T, Haque QMR, et al. In-vitro antibacterial and antioxidant activities of sandalwood (Santalum Album). Austin J Biotechnol Bioeng. 2014;1(2):01-03. ISSN: 2378-3036.

- [12] Sharma V, Agrawal RC, Pandey S. Phytochemical screening and determination anti-bacterial and antioxidant potential of Glycyrrhiza glabra root extracts. J Environ Res Develop. 2013;7(4A):1552-58.
- [13] Chahar MK, Kumar SD, Geetha L, Lokesh T, Manohara KP. Mesua ferrea L: A review of the medical evidence for its phytochemistry and pharmacological actions. Afr J Pharmacy Pharmacol. 2013;7(6):211-19.
- [14] Lestari MLAD, Indrayanto G. Curcumin. Profiles Drug Subst Excip Relat Methodol. 2014;39:113-204.
- [15] Gupta S, Walia A, Malan R. Phytochemistry and pharmacology of cedrusdeodera: An overview. Int J Pharm Sci Res. 2011;2(8):2010-20.
- [16] Sharma A, Prashar B, Arora P. Research article: *Cedrus Deodara*: A medicinal Herb. Der Pharma Chemica. 2018;10(4):06-10.
- [17] Richa T, Tripathi JS. A review article on neuroprotective effect of Shunthi. Indian J App Res. 2018;8(8):05-06.
- [18] Bhushan B, Kumar SS, Tanuja S, Lalit S, Hema A, Nash VZ. A pharmacological overview. Res J Pharm Biol Chem Sci. 2013;4(3):777-83.
- [19] Arya D, Patni V, Nair P, Kale RD. In vivo and in vitro determination of total phenolics, ascorbic acid content and antioxidant activity of *Pluchea lanceolata* (Oliver & Hiern). Int Journal Pharmaceutical Sci Res. 2015;6(2):875-79.
- [20] Soumaya KJ, Dhekra M, Fadwa C, Zied G, Ilef L, Kamel G, et al. Pharmacological, antioxidant, genotoxic studies and modulation of rat splenocyte functions by *Cyperus rotundus* extracts. BMC Complement Altern Med. 2013;13:28. Doi: 10.1186/1472-6882-13-28. PMID: 23388107; PMCID: PMC3570401.
- [21] Nagarajan M, Kuruvilla GR, Kumar KS, Venkatasubramanian P. Pharmacology of ativisha, musta and their substitutes. J Ayurveda Integr Med. 2015;6(2):121-33. Doi: 10.4103/0975-9476.146551. PMID: 26167002; PMCID: PMC4484047.
- [22] Sastry JL. DravyagunaVijnana. 2nd ed. II. Varanasi: Chaukhambha Orientalia; 2005; (551-7) 23-32.
- [23] Masood M, Arshad M, Qureshi R, Sabir S, Amjad MS, Qureshi H, et al. Picrorhizakurroa: An ethnopharmacologically important plant species of Himalayan region. Pure and Applied Biology. 2015;4(3):407-17.
- [24] Zahara K, Tabassum S, Sabir S, Arshad M, Qureshi R, Amjad MS, et al. A review of therapeutic potential of Saussurealappa- An endangered plant from Himalaya. Asian Pac J Trop Med. 2014;7(Suppl 1):S60-S69.
- [25] Karodi R, Jadhav M, Rub R, Bafna A. Evaluation of the wound healing activity of a crude extract of *Rubiocordifolia* L. (Indian madder) in mice. Int J Appl Res Nat Prod. 2009;2(2):12-18.
- [26] Nigam D, Singh C, Tiwari U. Evaluation of in vitro study of antioxidant and antibacterial activities of methanolic seed extract of *Sesamum indicum*. J Pharmacogn Phytochem. 2015;3(5):88-92.

PARTICULARS OF CONTRIBUTORS:

1. Postgraduate Scholar, Department of Shalyatantra, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod (H), Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India.
2. Associate Professor, Department of Shalyatantra, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod (H), Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India.
3. Postgraduate Scholar, Department of Shalyatantra, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod (H), Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Mr. Abhishek Dattatray Mavale,
PG Scholar, Department of Shalyatantra, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod (H), Datta Meghe Institute of Medical Sciences, Wardha-442001, Maharashtra, India.
E-mail: drabhishekmavale@gmail.com

PLAGIARISM CHECKING METHODS: [Jan H et al.]

- Plagiarism X-checker: Feb 08, 2024
- Manual Googling: Apr 11, 2024
- iThenticate Software: May 27, 2024 (7%)

ETYMOLOGY: Author Origin

EMENDATIONS: 7

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: Feb 28, 2024

Date of Peer Review: Apr 05, 2024

Date of Acceptance: May 28, 2024

Date of Publishing: Aug 01, 2024