



Research Article

www.ijrap.net

(ISSN Online:2229-3566, ISSN Print:2277-4343)



A CLINICAL STUDY TO EVALUATE THE EFFECT OF BALABRUHATIKADI TAILA YONIPICHU DHARANA IN PELVIC ORGAN PROLAPSE

Veena R^{1*}, Salini P², Divya Ramugade³

¹ Assistant Professor, Department of Prasuti Tantra and Streeroga, Alva's Ayurveda Medical College, Moodbidri, Karnataka, India

² Professor and HOD, Department of Prasuti Tantra and Streeroga, PNNM Ayurveda Medical College, Shornur, Kerala, India

³ Professor and HOD, Department of Prasuti Tantra and Streeroga, DY Patil Deemed to be University, Nerul, Navi Mumbai, Maharashtra, India

Received on: 06/4/24 Accepted on: 09/5/24

*Corresponding author

E-mail: veenarajeevan1994@gmail.com

DOI: 10.7897/2277-4343.15378

ABSTRACT

Pelvic organ prolapse is one of the common clinical conditions met in a day-to-day gynaecological practice. The entity includes the descent of the vaginal wall and/ or the uterus. Approximately 1/3rd of adult women affected with Pelvic organ prolapse have a significant impact on their quality of life. In Ayurveda, Yoni bhramsa, Prasamsini, Andini, Phalini and Mahayoni Yonivyapath closely resemble Pelvic organ prolapse. Vata is the prime dosa involved in the pathogenesis of Yoni bhramsa. Balabruhatikadi taila mentioned in Kuchimaratantrabhasyam in the context of Vatiki Yonivyapath chikitsa was selected for the study to evaluate the effect in the degree of descent in Pelvic organ prolapse by Pelvic Organ Prolapse Quantification (POPQ) scale and to assess the quality of life by using Pelvic Floor Distress Inventory-20 (PFDI-20). The study design was an interventional study with pre-and post-test evaluations, without a control group, and with a sample size of 28. Participants of the age group 30-60 years with 1st and 2nd degree Pelvic organ prolapse were administered with Balabruhatikadi taila Yonipichu dharana continuously for seven days other than the bleeding phase for two consecutive months. Assessments were done on the 1st and 7th day of treatment for two consecutive months, and follow-up was done on the 21st day after the completion of treatment. The study showed that Balabruhatikadi taila Yonipichu dharana effectively manages Pelvic organ prolapse.

Keywords: Pelvic organ prolapse, Yoni bhramsa, Balabruhatikadi taila, Yonipichu, Pelvic Organ Prolapse Quantification (POPQ) scale, Pelvic Floor Distress Inventory-20 (PFDI-20)

INTRODUCTION

Pelvic organ prolapse is a highly prevalent condition in the female population, which impairs the quality of life of affected individuals. It refers to loss of support to the uterus, bladder, and bowel, which leads to their descent from the normal anatomical position towards or through the vaginal opening¹. The true incidence of pelvic organ prolapse is unknown, as many women with clinically severe prolapse are largely asymptomatic, and many with mild degrees of prolapse may have severe pelvic floor symptoms². The prevalence of this is increasing with the growing aged population. Based on pelvic examination, the prevalence varies between 30-40%. In the Women Health Initiative study, pelvic organ prolapse was detected in 41% of women aged 50-59 years; this includes cystocele 34%, rectocele 19% and uterine prolapse 14%³.

Pelvic organ prolapse is a disturbed healing condition caused by the damage of pelvic floor muscles and connective tissue or a combination of the two. Its development is multifactorial and includes multiparity, vaginal childbirth, advancing age, connective tissue disorders and activities which increase the intra-abdominal pressure. The accumulation of reactive oxidative species (ROS) by sustained mechanical stress, estrogen deprivation and genetic mutations, which disturbs the activities of extracellular matrix (ECM) constituents (collagen, elastin, fibroblast, MMPs, TIMPs, etc.). While increasing the level of collagen degrading enzyme- MMPs (matrix metalloproteinases)

causes impaired collagen metabolism and results in biomechanical weakness of supporting structures of the pelvic floor, which leads to the development of Pelvic organ prolapse⁴. Current research focuses on the changes in the supporting network, where the ECM constituents play a vital role in accelerating connective tissue remodelling in POP patients⁵. Hence, Ayurvedic drugs, which can promote the synthesis of ECM components, especially collagen fibre, along with antioxidant and phytoestrogenic properties, can effectively manage POP.

Our Acharyas mentioned Yoni Bhramsa, Prasamsini, Andini, Phalini and Mahayoni Yonivyapath, which have close similarities with the symptoms of Pelvic organ prolapse. Yoni Bhramsa is Yoni Bahirgamana⁶ due to Vata vrudhi. Hence, Balabruhatikadi taila Yonipichu is mentioned under the 10th Dalam of Kuchimarathantrabhasyam⁷, having Vatahara property.

MATERIALS AND METHODS

Study Design: Interventional study with pre and post-test evaluation without a control group.

Study Setting: Outpatient department of PNNM Ayurveda College and Hospital, Cheruthuruthy, Kerala, India.

Study Population: Participants of the age group 30-60 years who came with Pelvic organ prolapse diagnosed by POP-Q scale and

those subjects satisfying the inclusion and exclusion criteria were selected for the study.

Inclusion Criteria

- Subject diagnosed with Pelvic organ prolapse by POP-Q scale
- The age group of 30-60 years.
- 1st and 2nd degree Pelvic organ prolapse.

Exclusion Criteria

- Known cases of rectal, bladder and genital organ malignancies
- Infectious disorders of the genital tract
- Congenital anomalies leading to Pelvic organ prolapse
- Subjects with irregular menstrual cycle

Ethical Clearance: The Institutional Ethical Committee approved this study with reference number PNNM/A2/PG/IEC-05/2020 dated 10/06/2020.

Method of Preparation of Balabruhatikadi taila: Kashaya was prepared using Bala, Bruhati, Kantakari and Devadaru. Kalka was made with Sathahwa, Nata, Kushta, Abda and Kounthi. Then, taila was prepared with ¼ part kalka, 4 parts kashaya, 1 part Tila taila, 2 parts ikshurasa and 4 parts goksheera in taila kalpana vidhi.

Duration of Drug Administration: Balabruhatikadi taila Yonipichu dharana continuously for seven days, other than the bleeding phase for two consecutive months.

Assessment: Objective parameters were assessed on the 1st and 7th day of treatment for two consecutive months, and follow-up was done on the 21st day after the completion of treatment. Subjective parameters were assessed before and after treatment and during the follow-up period.

Objective Parameter: Degree of descent in Pelvic organ prolapse assessed by POP-Q scale.

Table 1: Ingredients of Balabruhatikadi taila

Drugs	Botanical name
Bala	<i>Sida cordifolia</i>
Bruhati	<i>Solanum indicum</i>
Kantakari	<i>Solanum xanthocarpum</i>
Devadaru	<i>Cedrus deodara</i>
Satahwa	<i>Anethum graveolens</i>
Natha	<i>Valeriana wallichii</i>
Kushta	<i>Saussurea lappa</i>
Abda	<i>Cyperus rotundus</i>
Kounthi	<i>Vitex agnus castus</i>
Tila taila	<i>Sesamum indicum</i>
Ikshu rasa	<i>Saccharum officinarum</i>
Goksheera	

Table 2: POP-Q Scale (Scoring System) ⁸

Stage 0	No prolapse, points Aa, Ba, Ap, and Bp are all at -3 cm, and C or D is between total vaginal length -2 cm
Stage 1	The most distal portion of the prolapse is >1 cm above the level of the hymen.
Stage 2	The most distal portion of the prolapse is ≤1 cm proximal or distal to the plane of the hymen.
Stage 3	The most distal portion of the prolapse is >1 cm below the level of the hymen but protrudes no farther than 2 cm less than the total vaginal length in centimetres.
Stage 4	Complete eversion of the total length of the lower genital tract.

Table 3: 9 Sites of POP-Q Scoring System ⁹

Point /site	Description	Range
Aa	Anterior vaginal wall, midline 3cm proximal to external urinary meatus (point of ureterovesical crease)	-3 cm to +3 cm
Ba	Anterior vaginal wall, most distal position between Aa and anterior fornix	-3 cm to +TVL
C	Cervix or vaginal cuff	±TVL
D	Posterior fornix or vaginal apex	±TVL
Ap	Posterior vaginal wall, midline 3cm proximal to the hymen	-3 cm to +3 cm
Bp	Posterior vaginal wall, most distal position between Ap and posterior fornix	-3 cm to +TVL
Gh	Genital hiatus: External urinary meatus to posterior midline hymenal ring	2 cm
Pb	Perineal body: Posterior hymen to the anal opening	3 cm
TVL	Total vaginal length: Point C or D to the hymenal ring	10 cm

Table 4: POP-Q Scoring Grid ¹⁰

Aa	Ba	C
Gh	Pb	TVL
Ap	Bp	D

Subjective Parameter: Quality of life assessed by PFDI-20.

Table 5: Pelvic Floor Distress Inventory (PFDI-20) ¹¹

Pelvic Organ prolapse Distress Inventory 6 (POPDI-6)

Do You...	No	Yes
1. Usually experience pressure in the lower abdomen?	0	1 2 3 4
2. Usually experience heaviness in the pelvic area?	0	1 2 3 4
3. Usually have a bulge or something falling out that you can see or feel in your vaginal area?	0	1 2 3 4
4. Ever have to push on the vagina or around the rectum to have or complete a bowel movement?	0	1 2 3 4
5. Usually experience a feeling of incomplete bladder emptying?	0	1 2 3 4
6. Ever have to push up on a bulge in the vaginal area with your fingers to start or complete urination?	0	1 2 3 4

Colorectal-Anal Distress Inventory 8 (CRAD-8)

Do You...	No	Yes
7. Feel you need to strain too hard to have a bowel movement?	0	1 2 3 4
8. Feel you have not completely emptied your bowels at the end of a bowel movement?	0	1 2 3 4
9. Usually lose stool beyond your control if your stool is well-formed?	0	1 2 3 4
10. Usually lose stool beyond your control if your stool is loose?	0	1 2 3 4
11. Usually lose gas from the rectum beyond your control?	0	1 2 3 4
12. Usually have pain when you pass your stool?	0	1 2 3 4
13. Experience a strong sense of urgency and have to rush to the bathroom to have a bowel movement?	0	1 2 3 4
14. Does part of your bowel ever pass through the rectum and bulge outside during or after a bowel movement?	0	1 2 3 4

Urinary Distress Inventory 6 (UDI-6)

Do You...	No	Yes
15. Usually experience frequent urination?	0	1 2 3 4
16. Usually experience urine leakage associated with a feeling of urgency, that is, a strong sensation of needing to go to the bathroom?	0	1 2 3 4
17. Usually experience urine leakage related to coughing, sneezing or laughing?	0	1 2 3 4
18. Usually experience small amounts of urine leakage (that is, drops)?	0	1 2 3 4
19. Usually experience difficulty emptying your bladder?	0	1 2 3 4
20. Usually experience pain or discomfort in the lower abdomen or genital region?	0	1 2 3 4

Total= 20 questions, Symptom scale: 0 = not present, 1= not at all, 2 = somewhat, 3 = moderately, 4 = quite a bit

Scoring of PFDI-20

Scale Scores: Obtain the mean value of all the answered items within the corresponding scale (possible value 0 to 4) and then multiply by 25 to obtain the scale score (range 0 to 100). Missing items are dealt with by using the mean from answered items only.

PFDI-20 Summary Score: Add the scores from the 3 scales together to obtain the summary score (range 0 to 300).

Statistical Analysis: The Friedman test was used to compare the effect of intervention on objective parameters at different time

periods, and pair-wise comparison was done using the Wilcoxon signed rank test. Repeated measures of ANOVA were used to compare the quality of life before and after treatment, and a follow-up period and pair-wise comparison was done using the Least significance difference test (LSD).

RESULTS AND DISCUSSION

Effect of Intervention on Objective Parameter- Degree of descent in Pelvic organ prolapse.

Table 6: Degree of Descent in Different Compartments

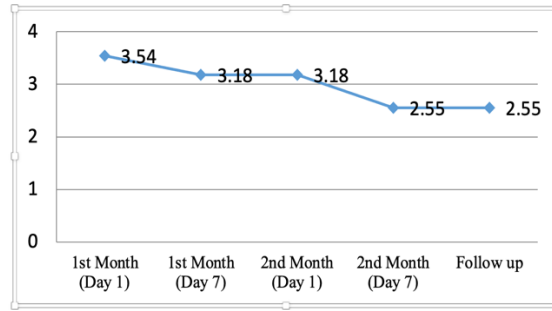
Period	Degree of descent	Number of subjects in Anterior compartment descent	Posterior compartment descent	Central compartment descent
Before treatment	2 nd	10	2	6
	1 st	7	7	11
After treatment	2 nd	5	2	3
	1 st	12	3	14
	0 th	0	4	0

The effect found after treatment was maintained during follow-up.

Table 7: Result of Freidman Test

Period	Mean rank	SD
1 st Month (Day 1)	3.54	0.686
1 st Month (Day 7)	3.18	0.663
2 nd Month (Day 1)	3.18	0.663
2 nd Month (Day 7)	2.55	0.612
Follow up	2.55	0.612

Chi-square	32.414
P-value	0.001



Graph 1: Mean rank of Overall Pelvic organ prolapse

After analysing the objective parameter by the Friedman test, it was found that the mean rank before treatment was 3.54, which gradually declined to the mean rank of 2.55 after treatment and which was maintained during follow-up. The Chi-Square value for comparing the effect of the intervention on the degree of

descent in pelvic organ prolapse at different time periods [32.414] was found to be significant, and the P-value was 0.001.

A pair-wise comparison was done using the Wilcoxon Signed Rank test.

Table 8: Result of Wilcoxon Signed Rank Test

Pairs	Calculated value	P-value	Significance difference
1 st Month (Day 1) and 1 st Month (Day 7)	-2.000	0.046	Present
1 st Month (Day 1) and 2 nd Month (Day 1)	-2.000	0.046	Present
1 st Month (Day 7) and 2 nd Month (Day 1)	0	1	Absent
1 st Month (Day 7) and 2 nd Month (Day 7)	-2.646	0.008	Present
1 st Month (Day 1) and 2 nd Month (Day 7) (Before and after treatment)	-3.317	0.001	Present
1 st Month (Day 1) and Follow up	-3.317	0.001	Present
1 st Month (Day 7) and Follow up	-2.646	0.008	Present
2 nd Month (Day 1) and 2 nd Month (Day 7)	-2.646	0.008	Present
2 nd Month (Day 1) and Follow up	-2.646	0.008	Present
2 nd Month (Day 7) and Follow up	0	1	Absent

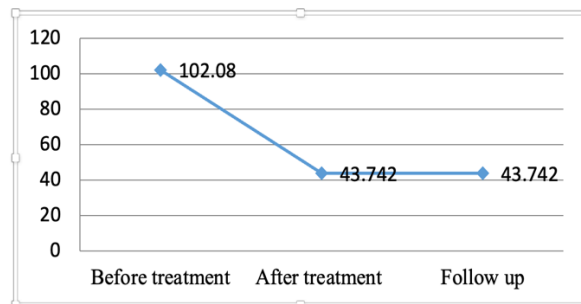
There was a significant difference between before and after treatment and also between before and follow-up periods with a P-value of 0.001

Effect of Intervention on Subjective Parameter- Quality of life.

Table 9: Results of Repeated Measures of ANOVA

Period	Mean	SD
Before treatment	102.08	36.327
After treatment	43.742	12.413
Follow up	43.742	12.413

F-value	120.341
P-value	<0.001



Graph 2: Mean Quality of life

On the analysis of subjective parameters by Repeated Measures ANOVA, the mean before treatment was 102.08, which was reduced to the mean of 43.742 after treatment and maintained on

follow-up. The F-value for comparing the quality of life [120.341] was significant, and the P-value was <0.001.

Pair-wise comparison was done using the Least Significant Difference test [LSD].

Table 10: P-values of LSD test

Period	Before treatment	After treatment	Follow up
Before treatment	1		
After treatment	<0.001*	1	
Follow up	<0.001*	1	1
*Significant difference present at 0.05 level			

There was a significant difference between before and after treatment and also between before and follow-up periods with a P-value <0.001

Discussion on Probable Mode of Action of Medicine

Balabruhatikadi taila contains 12 drugs such as Bala, Bruhathi, Kantakari, Devadaru, Satahwa, Natha, Kushta, Abda, Kounthi, Tila taila, goksheera and ikshu rasa.

Bala is Vatahara and indicated in Vatavyadhi. Balya, brimhana and dhatu ojo bala vardhana¹² help strengthen the supporting structures of pelvic organs. Ethanolic extract of *Sida cordifolia* has a wound-healing property, which promotes cellular proliferation and collagen synthesis in damaged tissues by increasing hydroxyproline content (the main component of collagen)¹³. So, it can manage the damaged pelvic connective tissue by correcting collagen metabolism. Its ethanolic extracts also possess antioxidant property¹⁴, so it helps to reduce the reactive oxidative species (ROS) accumulated by sustained mechanical stress on the pelvic floor.

Bruhathi is Vatahara¹⁵ which helps to reduce aggravated Vata in this condition. *Solanum indicum* has antioxidant property¹⁶, thus helping to reduce ROS.

Kantakari is Vatahara and bala pushtikari¹⁷; thereby, it can strengthen the supporting network. Studies showed that the alcoholic extract of *Solanum xanthocarpum* has wound-healing potential by significantly increasing collagen levels in rats¹⁸. This property may help to stimulate collagen production in damaged pelvic connective tissue in POP patients. Crude extract of *Solanum xanthocarpum* has antioxidant property¹⁹, so this can reduce ROS.

Devadaru is Kaphavatahara and dushtavrana visodhana karma²⁰. Chloroform extract of *Cedrus deodara* showed antioxidant properties and significant wound healing potential by increased hydroxyproline expression²¹, so this can repair the damaged pelvic cellular tissue.

Satahwa is Vatakaphahara²². Thus, it can correct the Vatavaigunya in Yoni bhramsa. It has Vrunahara property also. Studies mentioned that *Anethum sowa* showed accelerated re-epithelialisation of collagen deposition on wounds by increasing the expression of fibroblast growth factors and alpha receptors of estrogen²³. So this can repair the damaged pelvic floor by increasing the collagen level. Chemical constituents of *Anethum sowa*, such as kaempferol, trans-anethole and limonene, have phytoestrogenic property²⁴. Its estrogenic effect also stimulates the synthesis of collagen fibres, which helps strengthen the pelvic supporting network.

Natha is Kaphavatahara²⁵, which can reduce the aggravated Vata dosa. Its ethanolic extract showed antioxidant property²⁶, which helps to reduce the accumulated ROS.

Kushta is Vatakaphahara²⁷. Alcoholic extract of *Saussurea lappa* possesses significant wound healing activity by increasing hydroxyproline content, thereby promoting collagen synthesis²⁸. This property can strengthen the supporting network of the pelvic floor. Its antioxidant property²⁹ helps to reduce the ROS level.

Abda is balya and vrunagni³⁰. *Cyperus rotundus* has significant wound-healing activity due to increased collagen concentration. Abda contains tannins, which help to increase the number of fibroblast cells and stimulate transforming growth factor³¹; in this way, it helps improve the collagen content in damaged pelvic connective tissue. Its antioxidant property³² help to reduce the ROS.

Kounthi has tridoshagna, balya, kshayagna, ojovardhaka and dourblya unmoolana karma³³. This helps to strengthen the supporting networks of pelvic organs. Studies showed that *Vitex agnus castus* contains flavonoids such as apigenin, penduletin and vitexin, which exerted estrogenic effects, and flavonoid casticin showed the antioxidant property.³⁴

Tila taila has Kaphavatahara, balakruth, sthirakara, yoni visodhana and vrunashodhana karma, which is indicated in Vataroga³⁵. These properties help correct the Vatavaigunya and strengthen the pelvic floor musculature. Sesame oil revealed better wound healing activity by increasing collagen content. Tila taila contains zinc, one of the co-factors for collagen synthesis, which stimulates re-epithelialization³⁶. This may help remodel the ECM components on the pelvic floor. Sesame seeds also contain lignans that act as phytoestrogen³⁷, so its estrogenic effect can regulate collagen metabolism. Its antioxidant property³⁸ help to reduce the ROS.

Goksheera has madhura rasa, guru and snigdha guna, madhura vipaka and Vata-pittahara karma to alleviate aggravated Vata dosa. Its jeevaneeya, rasayana, balya and dhatuvaridhana karma³⁹ help strengthen the pelvic floor's supporting structures. Cow's milk is one of the methylsulfonylmethane sources, an essential sulphur for collagen synthesis and inhibits collagen breakdown⁴⁰. This facilitates the remodelling process of damaged pelvic cellular tissue. Cow's milk contains coumestans and lignans, which have phytoestrogenic property⁴¹. This helps in the synthesis of collagen fibres and results in the strengthening of the supporting network. Its antioxidant property⁴² helps to minimise the level of ROS.

Ikshurasa has madhura rasa, guru and snigdha guna, madhura vipaka and Vata-pittahara karma, so it helps to correct Vatavaigunya. It possesses balya, brimhana, and santharpana karma⁴³, which can strengthen the pelvic floor. Phenolic extract of sugar cane juice showed antioxidant property⁴⁴ to reduce ROS.

Balabruhatikadi taila having Vatahara karma and most of the drugs possess balya karma. Bala, Devadaru, Abda, Kushta, Satahwa, Tila taila and goksheera facilitate collagen synthesis, and Satahwa, Kounthi, Tila taila and goksheera showed phytoestrogenic properties. All of the drugs in this formulation also have antioxidant properties.

Mode of Action of Yoni Pichu

Yoni pichu is among the stanika chikitsa, and it is a simple, cost-effective, acceptable and effective therapy. So by keeping the Pichu ball for a particular period of time (till the urge of

micturition), it can support the weakened pelvic floor and which favours easy absorption of medicines through the vaginal epithelium and also accelerates pelvic connective tissue remodelling by changing the ECM components.

CONCLUSION

Balabruhatikadi taila is having Vatahara karma by its madhura rasa, guru and snigdha guna, and madhura vipaka or by its usna veerya. So, it helped to correct Vatavaigunya's involvement in this condition. Most drugs possess balya and dhatuvardhana karma, which have antioxidant and phytoestrogenic properties and can facilitate collagen synthesis. These properties helped to strengthen the supporting network of the pelvic organ. Keeping the Pichu ball for a while could help to support the weakened pelvic floor and favours easy absorption of medicines through the vaginal epithelium. It was found that Balabruhatikadi taila yoni Pichu dharana was statistically significant in reducing the degree of descent in Pelvic organ prolapse with P- value <0.001 and considerably improved their quality of life. So this study concluded that Balabruhatikadi taila yoni Pichu dharana effectively manages Pelvic organ prolapse.

REFERENCES

- Ilias Giarenis and Dudley Robinson. Prevention and management of pelvic organ prolapse. F1000Prime Reports 2014; 6:77.
- Sabaratnam Arulkumaran, V Sivanesaratnam, Alokendu Chatterjee, Pradap Kumar. Essentials of gynaecology. 2nd ed. Jaypee Brothers Medical Publishers; p. 214
- Soo-Ho Chung, Woong Bin Kim. Various Approaches and Treatments for Pelvic Organ Prolapse in Women. J Menopausal Med. 2018; 24(3): 155-162.
- Radu Dragos Marcu et al. Oxidative stress: A Possible Trigger for Pelvic Organ Prolapse. Journal of Immunology Research 2020; 2020: 3791934
- Rahajeng et al. Effect of Vitamin D on Elastin and Collagen Expression: *In vitro* study of Pelvic organ prolapse Prevention. European Journal of Medical and Health Sciences. 2021;3(1):37-41
- Sushruta, In: Vaidhya Jadavji Trikamji acharya, editor, Sushruta Samhita. Varanasi: Chaukhambha orientalia publication, Reprint 2009. p. 300
- Swami Sreeyut Balakrishnanath. Kuchimara Tantrabhashyam. Samrat publishers. P. 277
- D C Dutta. Displacement of the Uterus. In: Hiralal Konar editor, Textbook of Gynecology.8th edition: Jaypee Brothers medical publishers; 2020. Chapter-16, p. 166-170
- D C Dutta. Displacement of the Uterus. In: Hiralal Konar editor, Textbook of Gynecology.8th edition: Jaypee Brothers medical publishers; 2020. Chapter-16, p. 166-171
- D C Dutta. Displacement of the Uterus. In: Hiralal Konar editor, Textbook of Gynecology.8th edition: Jaypee Brothers medical publishers; 2020. Chapter-16, p. 166-172
- Barber MD et al. Short forms of two condition-specific quality of life questionnaires for women with pelvic floor disorders (PFDI-20 and PFIQ-7). Am J Obstet Gynecol 2005; 193: 103-113
- Dr. JLN Sastri, Dravyaguna vijnana vol-2, Varanasi: Chaukhambha orientalia publication, Reprint edition 2007. p. 87
- Pawar RS, Chaurasiya PK, Rajak H, Singour PK et al. Wound healing activity of *Sida cordifolia* Linn in rats. Indian J Pharmacol. 2013; 45(5):474-8
- K. Dhalwal et al. Evaluation of antioxidant activity of *Sida cordifolia*. Pharmaceutical Biology. 2008;43(9):754-761
- Dr. JLN Sastri, Dravyaguna vijnana vol-2, Varanasi: Chaukhambha orientalia, Reprint edition 2007. P. 371
- Shelly Rana Ved Prakash, Anand Sagar. Studies on Analysis of Antioxidant and Enzyme Inhibitory Activities of *Solanum indicum* Linn. Journal of Pharmacy and Biological Sciences. 2017;12(4):21-24
- Dr. JLN Sastri, Dravyaguna vijnana vol-2, Varanasi: Chaukhambha orientalia, Reprint edition 2007. p. 367
- Komal M. et al. The wound healing potential of *Solanum xanthocarpum* in Streptozotocin-induced diabetic rats. J Pharm Pharmacol. 2018;70(10): 1389-1400
- Suresh Jogee et al. *Solanum xanthocarpum*: A review. Int J Pharmacogn Chinese Med 2019;3(3):000177.
- Dr. JLN Sastri, Dravyaguna vijnana vol-2, Varanasi: Chaukhambha orientalia, Reprint edition 2007. P. 507
- Amendra K. Chaudhary et al. Wound healing, antimicrobial and antioxidant potentials of *Cedrus deodara* Loud. and *Pinus roxburghii* Sarg. Indian Drugs. 2022;59:29-40.
- Dr. JLN Sastri, Dravyaguna vijnana vol-2, Varanasi: Chaukhambha orientalia, Reprint edition 2007. p. 258
- Ruchi Dwivedi et al. Pharmacognostical study of *Anethum sowa* (Dill) seed. International Journal of Recent Biotechnology. 2014;2 (3):6-14
- Malihezaman et al. Effects of *Anethum graveolens* (Dill) on oocyte and fertility of adult female rats. Journal of Reproduction and Infertility. 2015; 16(1): 10-17
- Dr. JLN Sastri, Dravyaguna vijnana vol-2, Varanasi: Chaukhambha orientalia, Reprint edition 2010. p. 801
- SN Syed et al. Antioxidant and Hepatoprotective activity of Ethanol extract of *Valeriana wallichii* in CCl₄ treated rats. Journal of Pharmaceutical Research International. 2014;4(8):1004-1013
- Dr. JLN Sastri, Dravyaguna vijnana vol-2, Varanasi: Chaukhambha orientalia, Reprint edition 2007, p 307
- MSS Ganachari, S Kumar, A Patel. Wound healing activity of *Saussurea lappa* roots. Indian drugs. 2005;42(5):295
- Kyung-Mi Chang, Soo-Im Choi, Gun-Hee Kim. Antioxidant activity of *Saussurea lappa* C.B. Clarke roots. Preventive Nutritive and Food Science. 2012; 17(4):306-309
- Satyanarayana Patra, A review of Medicinal properties on *Cyperus rotundus* Linn. Ayushdhara, 2019;(3):2235-2341
- Ayarivan Puratchikody et al. Wound healing activity of *Cyperus rotundus* Linn. Indian Journal of Pharmaceutical Sciences. 2006;68(1):97-101
- Ali esmail. A recent update on Hepatoprotective potential of Herbal plant. Suresh Gyan Vihar University Journal of Environment, Science and Technology. 2015; 1 (1): 25-50.
- Dr. S.D. Kamat. Studies on Medicinal Plants and Drugs in Dhanvantari-Nighantu. Chaukhamba Sanskrit Pratisthan. Reprint 2011, vol 1, p 220-221
- Adamov et al. *Vitex agnus-castus*: Botanical features and area, chemical composition of fruit, pharmacological properties, and medicinal uses. Journal of Applied Pharmaceutical Science.2022;12(3):034-044
- Dr. JLN Sastri, Dravyaguna vijnana, Varanasi: Chaukhamba Orientalia, Reprint edition 2010, vol-3, p 59
- Mohammad Reza Sharif et al. Evaluation of the wound healing activity of Sesame oil extracts in rats. World Journal of Medical Sciences. 2013; 9(2):74-78.
- Wen-Huey Wu et al. Sesame ingestion affects sex hormones, antioxidant, and blood lipids in postmenopausal women. Journal of Nutrition 2006; 136(5): 1270-5.
- Yin Wan et al. The relationship of antioxidant components and antioxidant activity of Sesame seed oil. Journal of Science Food and Agriculture. 2015;95(13):2571-8.
- Vagbhata, Dravadravya vijnaniyam. In: Dr T. Sreekumar-editor, Ashtanga Hridaya, Sutrastana, chapter 5, 3rd edition, Harisree publishers; 2011, p 119

40. Ali Asghar Hemmati *et al.* Wound healing property of milk in full thickness wound model of rabbit. International Journal of Surgery. 2018; 54(Pt A): 133-140.
41. L. Blahova *et al.* Phytoestrogens in milk: overestimations caused by contamination of the hydrolytic enzyme used during sample extraction. Journal of Dairy Science. 2016;99(9):6973-6982
42. Zulueta *et al.* Antioxidant capacity of cow milk, whey and deproteinised milk. International Dairy Journal, 2009; 19(6):380-385
43. Dr. JLN Sastri, Dravyaguna vijñana vol-3, Chaukhamba Orientalia, Varanasi, Reprint edition 2010. p. 55
44. Joaquim Mauricio Duarte-Almeida *et al.* Antioxidant activity of phenolic compounds from Sugar cane (*Saccharum officinarum* L.) juice. Plant foods for Human Nutrition Journal. 2006;61(4): 187-192.

Cite this article as:

Veena R, Salini P and Divya Ramugade. A clinical study to evaluate the effect of Balabruhatikadi taila Yonipichu dharana in Pelvic organ prolapse. Int. J. Res. Ayurveda Pharm. 2024;15(3):94-100
DOI: <http://dx.doi.org/10.7897/2277-4343.15378>

Source of support: Nil, Conflict of interest: None Declared

Disclaimer: IJRAP is solely owned by Moksha Publishing House - A non-profit publishing house, dedicated to publishing quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJRAP cannot accept any responsibility or liability for the site content and articles published. The views expressed in articles by our contributing authors are not necessarily those of the IJRAP editor or editorial board members.