



CLINICAL EVALUATION OF PUNARNAVASHATAKA KWATHA IN JATODAKA AWASTH A OF UDARA W.S.R. TO ASCITES

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ABSTRACT :

India has more percentage of poor population who has no idea about living healthy; also the rich people do not follow the rules of lifestyle made by ancient Acharya of Ayurveda. People eat as they wish i.e. *Ushna*, *Tikshna*, *Vidahi*, *Dushit ahara*, drink excessive alcohol of poor quality, do not follow the *Dincharya* and *Rutucharya* given by *Ayurveda* which is really betterment for their healthy life but they are blindly following western life style which is not suitable for our climatic condition and body as well. All these causes give rise to '*Udara Vyadhi*'. These causes are increasing day by day, which increases number of patients of *Udara vyadhi* every year. Liver performs wide variety of metabolic functions. Due to alcohol consumption and infections today most people suffers from liver disorders leads to *Udara vyadhi* which can prevent easily by public awareness and simple precautions. The symptoms of *Udara* closely resembles with Ascites. Ascites is defined as accumulation of fluid in the peritoneal cavity. Patients were selected as per the selection criteria from the hospital attached to our college. Single group is made for experimental study. Patients were given *Punarnavashataka Kwatha* in the dose of 40ml twice a day along with *Koshna jala* in *Pragbhakta kala* for 30 days. The proper drug dose regimen was instructed to all patients so that all of them were almost similar conditions. *Pathy-apathy* plays a major role in *Udara vyadhi*, patients were strictly advised to take Milk of about 1-1.5 litres per day and water is strictly prohibited. Records were kept during the course of the treatment on Day7, Day14, Day21 and at the end Day30 i.e. end of the treatment under study design. The *Punarnavashataka Kwatha*¹ was found very effective in *Agnimandya*, *Malavshambha* and *Shotha*.

Key words: Liver, *Udara*, Ascites, *Punarnavashataka Kwatha*

INTRODUCTION: The prevalence of *Udara* is very high in our society. In this disease digestive system is mainly affected with *Agnimandya* (loss of appetite), *Malasanga* (constipation) and *Kukshi adhmana* (abdominal distension). In ancient classical texts, *Udara* is classified as *Amashayotha vyadhi*. *Udara* is one among such disease which was dealed with much importance in the classics under heading

'Ashtomahagad' that means eight life threatening diseases. In *Charaka Samhita* patients of *Udara vyadhi* are described as orphans who are not capable of doing all the activities and leave their last breath like orphans in want of proper remedy³. It is said in our ancient texts that for *Jalodar* (enlargement of the abdomen due to accumulation of water) the line of treatment should be firstly to prevent the accumula-

tion of water for that use of drugs which are *Rukshna*, *Tikshna* (dry and penetrating) mixed with cows urine should be administered decoction, powders, alkalies which are *Kapha hara*, food and drinks which subdue *Kapha* and increases digestion are indicated⁴. According to *Sushrutacharya*, the causative factor is *Agnimandya* giving rise to *Mala-sanchaya*, and hence to remove the *sanchit* or accumulated *Malas* and to improve the status of *Agni*, *Anulomana chikitsa* should be adopted⁵. Hence, for the treatment of *Udara Punarnavashataka kwatha*¹ which contains *Punarnava*, *Nimba*, *Patola*, *Shunthi*, *Tikta*, *Abhaya*, *Darvi*, *Amruta*

MATERIALS AND METHODS:

MATERIALS⁷:

Sr.no.	Drug	Latin name	Family	Parts used	Quantity
1.	<i>Punarnava</i>	<i>Boerhavia diffusa</i>	Nyctaginaceae	<i>Moola</i>	1 part
2.	<i>Nimba</i>	<i>Azadirachta indica</i>	Meliaceae	<i>Twaka</i>	1 part
3.	<i>Patola</i>	<i>Trichosanthes dioicia</i>	Cucurbitaceae	<i>Patra</i>	1 part
4.	<i>Shunthi</i>	<i>Zingiber officinalis</i>	Zinziberaceae	<i>Kanda</i>	1 part
5.	<i>Tikta</i>	<i>Picrorhiza kurroa</i>	Scrophulariaceae	<i>Moola</i>	1 part
6.	<i>Abhaya</i>	<i>Terminalia chebula</i>	Combretaceae	<i>Phala</i>	1 part
7.	<i>Darvi</i>	<i>Berberis aristata</i>	Berberidaceae	<i>Kaand</i>	1 part
8.	<i>Amruta</i>	<i>Tinospora cordifolia</i>	Menispermaceae	<i>Kaand</i>	1 part

Drug	Rasa	Vipaka	Veerya	Guna	Karma
<i>Punarnava</i>	<i>Madhura, Tikta, Kashaya</i>	<i>Katu</i>	<i>Ushna</i>	<i>Laghu, ruksha</i>	<i>Tridoshahar, Deepan, anulomana, mootrala</i>
<i>Nimba</i>	<i>Tikta, Kashaya</i>	<i>Katu</i>	<i>Sheeta</i>	<i>Laghu</i>	<i>Kaphapittashamak, Krumighna, Yakut-uttejak, Aampachak</i>
<i>Patola</i>	<i>Tikta</i>	<i>Katu</i>	<i>Ushna</i>	<i>Laghu,</i>	<i>Tridosha-shamak, Rochan,</i>

which is mentioned in *Bhaishajya Ratnavali* is used as *agni deepana, pachana, anulomaka* is taken for study.

AIM AND OBJECTIVES:

Aim : Clinical evaluation of *Punarnavashataka Kwatha*¹ in *Jatodaka*² *awastha* of *Udara* w.s.r. to *Ascites*¹¹.

Objectives :

- 1) To study the disease *Udara roga* in detail with *Ayurvedic* and modern aspects.
- 2) To assess the efficacy of *Punarnavashataka Kwatha*¹ in the treatment of *Jatodaka*² *Awastha* of *Udara roga*.

				ruksha	deepan, pachan, anuloman, rechan, pittasarak, shothahar
Shunthi	Katu	Madhur	Ushna	Laghu, Snigdha	Kaphavatashamak, Shothahar, deepan, pachan, vata-anuloman, Aampachan
Tikta	Tikta	Katu	Sheeta	Laghu, ruksha	Rochan, deepan, Yakrut-uttejak, Pitta-sarak, rechan
Abhaya	Pancharas Lavanvarjita (Kashaya pradhan)	Madhura	Ushna	Laghu, Ruksha	Tridoshahar, deepan, pachan, yakrut-uttejak, anuloman, mrudurechan
Darvi	Tikta, kashaya	Katu	Ushna	Laghu, ruksha	Shotha-har, Yakrut-uttejak, Pitta-sarak, deepan, Svedajanan
Amruta	Tikta, Kashaya	Madhura	Ushna	Guru, Snigdha	Tridosha-shamak, deepan, pachan, Pitta-sarak, anuloman

Preparation of Kwatha

Coarse powder – 1 part; Water -16 parts; Mean proportion of Churna : Water = 1 : 16

Punarnava, Nimba, Patola, Shunthi, Tikta, Amruta, Darvi and Abhaya were mixed together in the pot and water was added. It was boiled under slow and uniform heat.

After the mixture boiled and water remained 1/8 th of original volume fire was ceased. It was then allowed to cool up to room temperature and after that was filtered.

METHOD: Randomly selected 50 patients were treated with ‘Punarnavashatka Kwatha’.

Inclusion criteria :	Exclusion criteria :
1. Age : 20 – 60 years old 2. Sex : Both male and female 3. Socio Economic status : All 4. Patients of Udara roga presenting features as per Ayurvedic text such as Udakapurnadruti kshobha sansparsha, Shobha, Mandagni, Nanavarnarajisira, Gamne Ashakti, Sango Vata-Pureeshyo, Shwasha	1. Peritoneal infections like Tuberculosis 2. Congestive Cardiac failure 3. Nephrotic Syndrome 4. Patients who are not fit for Shodhan therapy.

Investigations:

- 1) CBC with ESR
- 2) Urine complete
- 3) USG (Abd and Pelvis) if necessary

All investigations were done on day 0 to rule out any other pathology.

- 1) Sr.Bilirubin –total, direct, indirect

2) SGOT and SGPT

The quantitative analysis of above values was done before and after treatment.

CLINICAL STUDY: Clinical study carried out on randomly selected 50 patients showing signs and symptoms of Udara (Ascites).

Experimental Group :

Kala : Pragbhakta^{9,10} (before meal)

Matra : 80 ml of Kwatha per day in two divided doses

Duration : 30 days

Anupana : Koshna jala

Follow up: D7, D14, D21 and D30

CRITERIA OF ASSESSMENT:

Subjective Parameters:

Sr no	Sign & symptoms	Criteria	Score
1	<i>Udara vruddhi</i> (Abdominal Distension):	Absent Mild, only visible on USG Detectable with Flank bulging and Shifting dullness Directly visible, confirmed with the Fluid wave/Thrill test	0 1 2 3
2	<i>Shopha</i> (Oedema):	Absent or Unilateral Mild both feet/ankles Moderate-both feet, lower legs, hands or lower arms Severe-Generalized bilateral edema including both feet, legs, arms and face	0 1 2 3
3	<i>Mandagni</i> (Loss of Appetite):	Absent Present	0 1
4	<i>Nanavarnarajisira</i> (Caput medusae)	Absent Present with mild dilated vessels Moderate dilated vessels Severely dilated vessels	0 1 2 3
5	<i>GamneAshakti</i> (Inability to walk)	No limitation of physical activity Slight limitation of physical activity Marked limitation of physical activity Unable to carry physical activity	0 1 2 3
6	<i>Pureesha sanga</i> (Constipation)	Absent Bowel faeces passed alternate days Bowel faeces passed after 2 days	0 1 2

		Bowel faeces passed after more than 3 days	3
7.	<i>Shwasha</i> (Dyspnoea)	No limitation of physical activity	0
		Slight limitation of physical activity	1
		Marked limitation of physical activity	2
		Unable to carry physical activity	3

Objective Parameters:

A) 1. Objective Criteria

- 1) Abdominal Girth
- 2) Body wt.
- 3) Sr.Bilirubin –total, direct, indirect
- 4) SGOT and SGPT

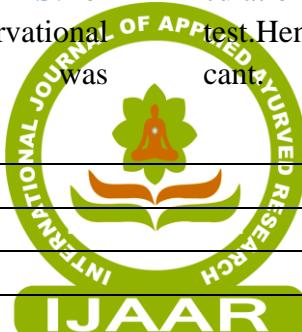
The quantitative analysis of above values was done before and after the treatment.

OBSERVATIONS AND RESULTS: For the interpretation of the observational mode, statistical analysis was

- 2) *Shopha*

done. Observations on assessment criteria regarding statistical analysis of the study group was done by applying Wilcoxon's Signed Rank Test and Z test as sample size is large, results drawn are as follows :

1) *Udara vruddhi* In *Udara vruddhi* data includes tied values, so sample size becomes too small to allow a reliable calculation of the Wilcoxon signed rank test. Hence *Udara vruddhi* is not significant.



W value	52.5
Mean difference	0.54
Sum of positive ranks	1123.5
Sum of negative ranks	-52.5
Z value	-5.4924
Mean	588
S.D	97.5
Sample size	48
Result	P<0.05 Significant

- 3) *Agnimandya*

W value	0
Mean difference	1
Sum of positive ranks	1225
Sum of negative ranks	00
Z value	-6.0927
Mean	612.5
S.D	100.53
Sample size	49
Result	P<0.05 Significant

4) Nanavarnarajisira: In Nanavarnarajisira data includes tied values, so sample size becomes too small to allow a reliable calculation of the Wilcoxon signed rank test. Hence Udara vruddhi is not significant.

5. Gamne Ashakti:

W value	30
Mean difference	2.14
Sum of positive ranks	201
Sum of negative ranks	-30
Z value	-2.9718
Mean	115.5
S.D	28.77
Sample size	21
Result	P<0.05 Significant

6. pureesha sangna

W value	00
Mean difference	1.37
Sum of positive ranks	630
Sum of negative ranks	00
Z value	-5.1594
Mean	315
S.D	61.05
Sample size	35
Result	P<0.05 Significant

7) Shopha

W value	14
Mean difference	3.13
Sum of positive ranks	106
Sum of negative ranks	-14
Z value	-2.6125
Mean	60
S.D	17.61
Sample size	15
Result	P<0.05 Significant

Objective Parameter

1) Body weight : By Z test

Mean of B.T	Mean of A.T	SE	Z value	Result
53.82	53.06	1.58	3.04	>1.96, hence significant

2. Abdominal girth at umbilicus : By Z test

Mean of B.T	Mean of A.T	SE	Z value	Result
95.65	92.22	2.38	11.43	>1.96, hence significant

3.Sr. Total Bilirubin : By Z test

Mean of B.T	Mean of A.T	SE	Z value	Result
1.93	1.68	0.39	1.25	<1.96, hence not significant

4.Sr. Direct Bilirubin : By Z test

Mean of B.T	Mean of A.T	SE	Z value	Result
1.2098	1.146	0.2874	0.59	<1.96, hence not significant

5.Sr. Indirect Bilirubin : By Z test

Mean of B.T	Mean of A.T	SE	Z value	Result
1.0052	0.9942	0.144	0.15	<1.96, hence not significant

6.SGOT : By Z test

Mean of B.T	Mean of A.T	SE	Z value	Result
50.46	42.68	7.16	14.67	>1.96, hence significant

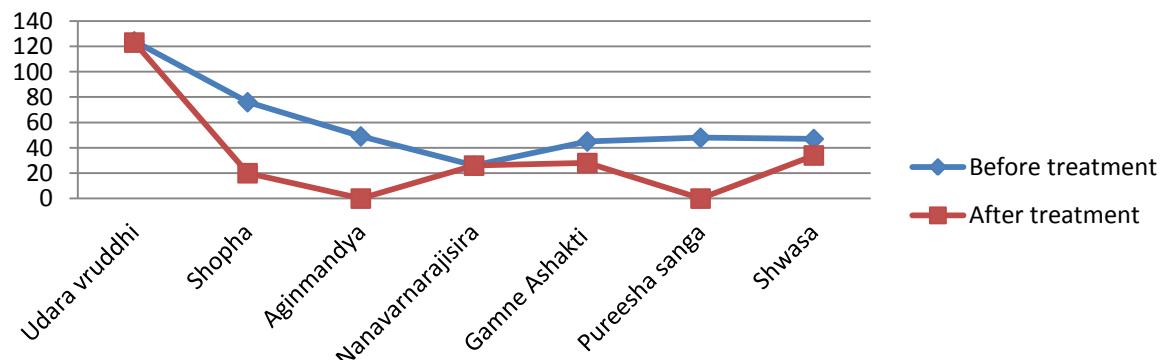
7.SGPT : By Z test

Mean of B.T	Mean of A.T	SE	Z value	Result
73.56	62.22	26.23	11.07	>1.96, hence significant

Distribution of patients according to total effect of therapy

Type	No. of Patients	Percentage
Uttam	01	02
Madhyam	23	46
Heena	21	42
Anupashaya	05	10
Total	50	100

Distribution of patients according to total effect of the therapy after the treatment



DISCUSSION: In *Udara vruddhi*, less significant difference is observed on day 30 in comparison with before treatment and after treatment according to gradations of data. But markedly difference is observed in reduction of abdominal girth at umbilicus. There is significant result is observed in *Shopha* after the treatment, about 73.68% of relief was observed in *Shopha lakshana*. The significant relief observed in *Shopha* may be due to the *Aam pachan* which helps in removing the obstruction in *Srotas*, do *Vata anuloman* which helps in removing *Kleda* from the body. The significant relief of 100% was observed in the *Agnimandya lakshana* and this may be as all the drugs which are used in *Kwatha* are of *Katu*, *Tikta rasa*, *Ushna veerya* which helps in *aam pachan* leads to *Agni deepan*. The result was highly significant. There is no significant difference observed on day 30 in comparison with before treatment and after treatment in *Nanavarnarajisira lakshana*. Hence a further longer study is required.

There is significant relief observed in *Gamne ashakti* after the treatment. Due to large abdominal size patient is not able to his daily activities and also as the due to *Katuki* there are 4-5 motions takes place which also makes the patients exhausted. But some relief of about 33.77% was observed in patient due to the pressure release of abdomen through *rechan* property of *Kwatha*. The significant relief of 100% was observed in *Pureesha sanga lakshana*. It is due to effect of *bhedan* property of *Katuki* and *anulomak* property of *Haritaki* which helps to remove *sanchita mala* from the body. There is significant relief observed in *Shwasa* after the treatment. Due to large abdominal size patient is not able to do his daily activities. As after *Udara vyadhi* it creates more *Agnimandya* that

patient is not able to eat due to this *apachit rasa* forms which gets circulated in the body do *Srotorodha*, again due to *Srotorodha* it creates more *Agnimandya* and this vicious cycle goes on hence due to *Mala anuloman Kapha* gets eliminated from the body which helps to release the pressure due to *Srotorodha* and helps in reduce *Shwasa*. Relief of about 27.65% was observed in patient.

There is statistically significant reduction in body weight of the patients. There is statistically significant reduction in abdominal girth of patients. As in *Udara vyadhi* it is said that *Nitya virechan* is must for patients of *Udara* so that *sanchit mala* gets eliminated from the body which helps in to reduce the pressure. As *doshas* gets eliminated it helps for increasing *Agni* which further do *Aam pachan* and do properly *Sara-kitta vibhajan*.

Effect on Investigations
There is statistically improvement was observed in SGOT and SGPT .But there is no significant results was observed in Sr.total, direct and indirect billirubin.

Discussion regarding Total effect of Therapy :

After studying all the data thoroughly it was observed that out of 50 patients in study group 23 (46%) received *Madhyam Upashaya* and 21 (42%) received *Heena Upashaya*. Observations regarding the adverse effect are that in some patients the frequency of motions was increased it is due to the *Bhedaka* and *Tikshna* property of *Katuki*. 12 patients discontinued the treatment in between follow up from which 7 are malignant so they were excluded from the study. Limitation of our study were that, it was for a short period as *Udara vyadhi* is chronic and also *kashta sadhya vyadhi*, it is necessary to study this topic for a larger duration, also due to its

chronicity and having many complications a single drug cannot acts as sufficient medicine for relief to patients, but it can be given as supportive medicine with other medicines.

Further scope of studies :

- 1.The effect of *Punarnavashataka Kwatha*¹ on Liver enzymes should be evaluated on large sample size.
- 2.Long duration of study to assess more effect on reduction in abdominal girth of patients.
- 3.Can *Punarnavashataka Kwatha* be used as adjuvant chikitsa in *Udara vyadhi* patients?

Since the patients showed improvement in sign and symptoms of *Udara vyadhi* the aim and objective is achieved.

Probable mode of action of drug:

In *Udara vyadhi*, the main causative factor is *Agnimandya* which gives rise to *malasanchaya* due to mala *Srotorodha* of *Swedavaha* and *Ambuvaha srotas* takes place and also affects *Pran*, *Agni* and *Apana vayu* which leads to accumulation of fluid in interspace between skin and muscle and makes *Udara vruddhi* causing *Udara vyadhi*. As *Udara vyadhi* has main *Agnimandya*, *Malasanchaya* and *Srotorodha* in its *Samprapti* hence the *dravyas* used for the treatment of *Jalodar* acts basically as *Agnideepan*, *Pachan*, *Srotoshodhan*, *Anuloman* of *Doshas*, hence *Punarnavashataka Kwatha* was chosen for study which increases the *Agni*, opens the blockage of *Srotas* and reduces the *Sanchit Mala* by *anuloman*. As there are eight drugs in *Punarnavashataka Kwatha*, each drug has its own importance in breaking the *Samprapti* of *Udara vyadhi*. The *karmukatva* of each drug on disease as follows:

1. *Punarnava* : As *Aahar rasa* do *poshan* of all the *dhatus*, but in *vikruti* conditions due

to *Vata prakop* it causes *dushti* of *Pitta*, *Kapha* and *Rasa* due to this it creates obstruction in the flow of *Rasa* which causes its accumulation in between *Twaka* and *Mansa* leads to *shotha*. As *Punarnava* is *Ushana* in *veerya* which decreases *Vata prakopa* and due to *Madhur*, *Tikta* and *Kashaya rasa* it decreases vitiated *Pitta* and *Kapha*. In *Udara vyadhi* there is *Srotorodha* of *Swedavaha srotas* as *Punarnava* is of *Ushna veerya* it stimulates the *Swedavaha srotas* which cause more sweat to release from body. Also *Punarnava* shows diuretic property which helps to remove accumulated *kleda* from the body.

2. *Katuki*: As *Katuki* is *Tikshna* in *guna*, it causes *bhedan* in higher doses. *Katuki* is *Kapha-Pitta hara* and *Bhedaka*. *Katuki* is choleric as well as cholagogue. Choleretic is a drug, which stimulates the production of bile while cholagogue is a drug which stimulates the flow of bile from gall bladder. Presence of excess bile in the intestine increases peristaltic movements due to irritation. This leads to purgation, Apocyanin from *P. kurroa* showed choleric action. *Katuki* is hepatoprotective, anticholestatic, antioxidant and immunomodulatory. It lowers various parameters of liver and serum due to alcohol consumption.

3. *Shunthi*: *Shunthi* is *Katu* in *rasa* and *Ushna* in *veerya* due to its *Katu rasa* it does *Shodhan* and *Srotovikasan* (which dilates the srotas) and *Ushna guna* stimulates the appetite, improves the digestion (*pachak*) and is *sarak*. Hence it does *Srotovishodhan* which reduces the *sanchita mala* and increases *agni*.

4. *Nimba* : As *Nimba* is of *Tikta rasa* and of *Katu Vipaka* it causes *Aam pachan* absorbs the fluid and slimy material due to *Vata* and thus vacating the space on account of

Aakash. Due to *Sukshma guna* it permeates even to the minute channels which cause *Srotoshodhan* which helps in breaking the pathology of *Udara vyadhi*.

5. Patola :*Patola* is of *Tikta rasa*, *Katu vipaka* and of *Ushna veerya* it acts as *Tridosha shamak* helps in *Ama pachan* and *Srotoshodhan*. It has hepatoprotective property which helps in lowering AST and ALT⁸.

6. Amruta :As *Guduchi* is of *Tikta*, *Kashaya rasa* it helps in *Kapha* and *Pitta shaman*, due to *Snigdha guna* and *Ushna veerya* it helps in *anulomana* of *Vata*, hence acts as *Tridosha shamak*. As *Udara vyadhi* is of *Tridosha* origin *Guduchi* helps in breaking the *Samprapti* of disease. It acts as *Deepan*, *Pachan*, *Pitta-sarak*, *Anulomak*. It has Hepato-protective activity, mild diuretic action.

7. Daruharidra :*Daruharidra* is of *Tikta*, *Kashaya rasa* helps in *Aam pachan*, *Srotoshodhan*, *Sveda janan*. It acts as *Deepan*, *Yakrut uttejaka*, *pitta-sarak*. It acts as hepatoprotective improves the excretion of bilirubin.

8. Haritaki :By virtue of its *Madhura*, *Tikta* and *Kashaya rasa*, it is *Pittaghna*, by its *Katu*, *Tikta* and *Kashaya ras*, it is *Kaphaghana* and by *Amla* and *Madhura rasa* it is *Vataghna*. But *Haritaki* is particularly *Vatashamak*. It is helpful in *Tridosha janya vyadhi* as *Udara* is *tridoshjanya haritaki* helps in it. It is *Deepan*, *Pachan*, *Yakrut uttejak*, *Anulomak*, *Mrudu-rechak*, *Mutral*, and excellent *Srotoshodhak*. As the main cause of *Udara vyadhi* is *Agnimandya* which causes *Ama*, due to *Ama* there is *Srotorodha* which leads to accumulation of *doshas* as *Mala sanga*. Hence the drug to be used in *Udara vyadhi* should be *Deepan*, *Pachan*, *Srotoshodhak*, *Pittastravak* and *Anulomak*. Due to the

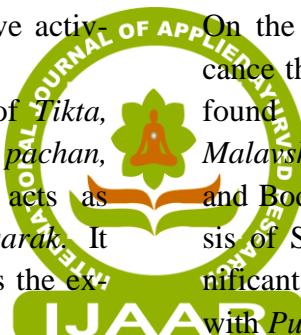
Amla rasa of *Haritaki* it stimulates appetite and being *Sukshma* in nature it can easily penetrate the *Srotas* and removes the obstruction within it. As major *dravyas* in *Punarnavashataka Kwatha* are of *Katu* and *Tikta rasa* it does *Shodhan* and *Srotovikasan* (dilates the srotas). All *dravyas* in *Kwatha* are of *Ushna veerya* except *Nimba*, *ushna guna* stimulates the appetite, improves digestion and is *Sarak*. *Tikshna guna* of *Katuki* helps in *Shodhan*, *Lekhan*, *Mala pravartan* and *Stravjanan*.

CONCLUSION: From the clinical trials conducted for the study "Clinical evaluation of *Punarnavashataka Kwatha*¹ in *Jatodaka*² awastha of *Udara* with special reference to *Ascites*" following conclusion is drawn:

On the basis of statistical test of significance the *Punarnavashataka Kwatha*¹ was found very effective in *Agnimandya*, *Malavshambha*, *Shotha*, Abdominal girth and Body weight of *Udara vyadhi*. Analysis of SGOT and SGPT level shows significant improvement in many patients with *Punarnavashataka Kwatha*¹, where as there is less changes shown in the level of Sr. Total, Direct and Indirect bilirubin. Thus it can be concluded that *Punarnavashataka Kwatha*¹ is effective in the management of *Udara vyadhi*.

REFERENCES:

1. *Bhaishajya ratnavali*, Publisher – Chaukhamba Sanskrit Sansthan, Varanasi, Sixth edition, Bh.ra.40/33, Page no. 532.
2. *Yogratnakar* by Vaidya Laksmipati Sastri, edited by Bhisagratna BrahmaSankar Sastri, Published by Chaukhamba Sanskrit Sansthan, 7th edition, 1999, Yo.Utt.Udaranidan/38, Page no. 106
3. *Charaka Samhita* Text with English Translation, Editor – Translator – Prof. Priyavrat Sharma, Fifth Edition – 1998,



Volume I and II, Publisher – Chaukhamba Orientalia, Varanasi, Ch.Chi.13/6, Page no. 204

4. *Ashtanga Sangraha* Jaikrishnadas Ayurveda series 106, by Dr. P.Srinivas Rao; Publisher – Chaukhamba Krishnadas academy, Varanasi, First edition-2008, Vol.II, As.Sa.Chi.17/39, Page no.505

5. *Sushrut Samhita* Jaikrishnadas Ayurveda series 102, by K.R.Srikantha Murthy; Publisher – Chaukhamba Orientalia, Varanasi, 2nd edition, 2008, Vol. II, Su.Chi.14/9, Page no. 143

6. *Sharangadhar Samhita* with Dipika and Gudhartha Dipika commentary by Pt. Parshuram Shastri Vidyasagar; Krishnadas academy, 1st edition, 1983.

7. *Dravyaguna vigyan* by Acharya Priyavrat Sharma; Chaukhambabharti academy; Reprint edition 2011, Page no. 630,149,697,331,441,753,537,761.

8. Ghaisas MM, Tanwar MB, Ninave PB, Navghare VV, Deshpande T, Hepatoprotective activity of aqueous and ethanolic extract of T.diocia in ferrous sulphate induced liver injury. Pharmacologyonline, 3:127-135,(2008).

9. Hemadri In:Commentator, Ashtanga Hridaya, Sutra sthana, Dosopakramaniya Adhyaya 13/38, Reprint 1st edition,

Paradkar HS, editor Varanasi: Chaukhamba Surbharati Prakashan: 2002 Page no. 219

10. Indu. In: Commentator, Ashtanga Sangraha, Sutra Sthana,23/14. 1st edition. Sharma SP, Varanasi: Chaukhamba Sanskrit Series Office; 2006. Page no.180

11. Davidson's principles & practice of medicine, 20th edition,2006, Edited by Nicholas A Boon, Nick R.Colege, Brian R. Walker, John A. Hunter; Churchill, Livingstone,Elsevier,Page no.936-938

12. Harrison's 'Principles Of Internal Medicine', 19th Edition – 2015 International Edition, Volume I & II, Editors : Anthony S. Fauci, (Eugene Braunwald, Kurt J. Isselbacher, Jean D. Wilson, Joseph B. Martin, Dennis L. Kasper, Stephan L. Hauser, Dan L. Longo) etal , Published – The McGraw – Hill companies, Inc. Page no-286, 2064,206

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