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Original Article

A Trial on *Ishwarimula* (*Aristolochia indica* Linn.) in *Dushta Vrana* in Patients

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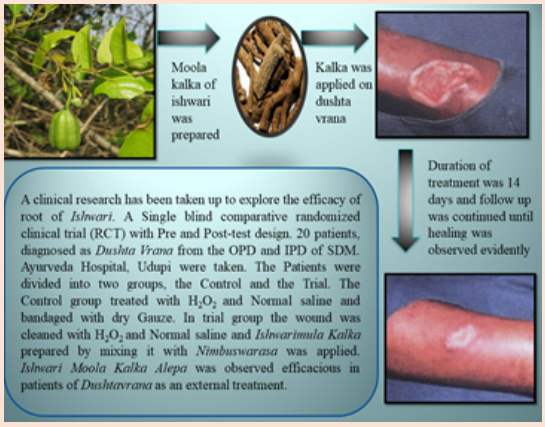
ABSTRACT

Background: From the time immemorial man is dependent on plant resources to get rid of the ailments. Ishwari (*Aristolochia indica* Linn.) is a drug having wound healing property used frequently by the folklore practitioners. Non healing ulcer is said to be *Dushta vrana* routinely encountered in the medical practice were most of the treatment modalities failed to show their extensive efficacy. This is the stage where the practitioners search for the better line of treatment and the efficacious medicines. In folklore practice *Ishwarimula kalka* is mixed with *Nimbu swarasa* and applied to the wounds. Hence a clinical research has been taken up to explore the efficacy of root of *Ishwari*. The aim of the current study is to perform preliminary phytochemical analysis of root of *Ishwari* (*A. indica*) and to evaluate its clinical efficacy of in *Dushtavrana*. **Methods:** The plant is authenticated referring standard flora; the preliminary phytochemical study was done according to standard protocol. A Single blind comparative randomized clinical trial (RCT) with Pre and Post-test design. 20 patients, diagnosed as *Dushta Vrana* from the OPD and IPD of SDM. Ayurveda Hospital, Udupi. The Patients were divided into two groups, the Control and the Trial. The Control group treated with H2O2 and Normal saline and bandaged with dry Gauze. In trial group the wound was cleaned with H_2O_2 and Normal saline and *Ishwarimula Kalka* prepared by mixing it with *Nimbuswarasa* was applied. Results: Statistically significant improvement was observed in group treated with *Ishwarimula Kalka* with *Nimbu swarasa*. Probably the *Tikta, Kashaya Rasa* and *Teekshna, Ruksha Guna* of the drug might have done *Samprapti Vighatana* of the condition, moreover the test drug was positive for protein, carbohydrate, alkaloid, saponin and other antiseptic content, which has accelerated the process of wound healing. **Conclusion:** *Ishwari Moola Kalka Alepa* was observed efficacious in patients of *Dushtavrana* as an external treatment.

KEYWORDS Non-healing ulcers, *Mulakalka Alepa,* Wound healing, Phytochemical, Clinical study.

PICTORIAL ABSTRACT



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1. INTRODUCTION

The *Guna Karma* of the drug *Ishwari* (*Aristolochia indica* Linn.) is mentioned in Hareetakyaadi varga of Bhavaprakasha where the drug is said to be effective in wound healing process.[1] The drug used frequently by the folklore practitioners in non-healing ulcers. In folklore practice *Ishwarimula kalka* is mixed with *Nimbu swarasa* and applied to the wounds.[1] There is no reference regarding *Ishwari* in Vedic literature. In Samhithas the drug is used under the name *Nakulidvaya* namely *Nakuli* and *Gandha Nakuli*, the later refers to *Aristolochia indica* Linn. Acharya Charaka mention this drug in the preparation of *Agurvaadi Taila* for *Sheetabhi Jwara*.[2] Acharya Sushruta mention it in application for *Sarpa Visha*.[3] Ashtanga Hridaya refer it for *lepa* in *Ekanga Shopha*.[4] In Kaiyyadeva Nighantu the drug is said to possess *katu, tikta* and *kashaaya rasa, ushna* in *veerya* and indicated in *Vrana, Krimi* and *Sarpa, Luta, Vrischika, Aakhu Visha* and also in *Gara Visha*.[5]

Dushta Vrana is such long standing ulcer with profuse discharge and slough, where *shodhana* and *ropana* line of management is

very much necessary.[6] Sushruta has used various techniques to achieve wound healing, in the form of *Shodhana* and *Ropana* both locally and orally.[7]

Medical management has become very expensive and there is every chance to get side effects. Non healing ulcers are not exception for the same and we need safe and cost-effective medicaments in hand. As *Ishwari* is used in folklore practice for various disorders like wound since long time, the root of which is selected to explore its efficacy in non-healing ulcers.

2. MATERIALS AND METHODS

The samples of *Ishwari* (*A. indica*) were collected from the region of Udyavara village, Taluk and District Udupi in Karnataka State and authenticated with Local Flora.[8-10] The root powder is assessed for its phytochemicals at SDM centre for research in Ayurveda and Allied Sciences, Udupi. *Kwatha, Hima, Phanta*, chloroform extract, ethanol extract, methanol extract and petroleum benzene extract.[11-12]

A Single blind comparative randomized clinical trial (RCT) with pre- and post-test design. Twenty patients, diagnosed as *Dushta Vrana* from the OPD and IPD of SDM Ayurveda Hospital, Udupi, were divided into two groups. The Control group - Treated with H_2O_2 and Normal saline and bandaged with dry Gauze. The Trial group –Treated *Ishwarimula Kalka* prepared by mixing it with *Nimbu Swarasa* was applied.

2.1 Inclusion Criteria

All the types of Non healing ulcer with minimum history of three weeks including diabetic (under glycemic control), venous ulcer of age between 20-60 years.

2.2 Exclusion Criteria

Malignant ulcer, tubercular ulcer, patient of HIV and hepatitis infection, sign of gangrene, pregnant women.

2.3 Investigation

Routine blood examination including FBS, PPBS and Urine analysis.

2.4 Duration

All the cases were treated up to a period of 14 days and weekly assessment was done up to complete healing of the wound or three months which is earlier.

2.5 Assessment criteria

Subjective parameters like, Pain, Burning, Itching and smell. Objective Parameters were Size in Length and breadth, Discharge, Local Tenderness, Floor and Granulation Tissue.

2.6 Statistical application

The effect of the drug *Ishwari* is analyzed by Statistical measures with regards to symptom scorings, before and after the treatment. All statistical analysis was done using the software Sigma stat version 3.1.

3. RESULTS

Ishwari botanically identified as *Aristolochia indica* Linn is a perennial climber. The stem is greenish or pale to dark purple woody with pale green flower and capsule fruit (Figure 1). The preliminary phytochemical study of the drug has shown presence of protein, carbohydrates, glycosides and flavonoids. Proteins and flavonoids are very important in wound healing (Table 1). The trial group has shown significant result in reducing pain, itching and smell. The granulation tissue formation was excellent in trial group (Table 2 and 3), (Figure 2).

4. DISCUSSION

Among all test done on different extract of the root, protein, carbohydrates, glycosides and flavonoids found to be positive. Protein plays a vital role in the healing process of wound. The Aristolochic acid is the main glycoside isolated from the root of the plant. This Glycoside and the flavonoids of the root bound to have antimicrobial and antifungal activity. Thus accelerated the process of wound healing by its antiseptic property.

The symptoms of reduction of tenderness and discharge were insignificant in trial group. The wound which is chronic and has got bad odor, slough and vitiated by *Tridoshaas* are said to be *Dushta*. Hence the drug should be competent enough to do *Shodhana* of this *Dushta Vrana* and heal the wound by its *Ropaka* quality. The *Tikta Rasa* of the drug *Ishwari* does *Srotoshodhana*, the *Teekshna Guna* is stimulant and penetrates the drug to the surrounding tissue as well as into the vascular system, there by enhances the blood flow by removing the obstruction. *Ruksha Guna* makes the slough dry and detached. *Kashaaya Rasa* stop the discharge and heal the wound at last stage. The *Teekshna* and *Ushna veerya* did not allow the drug to

Figure 1: Plant Ishwari (*Aristolochia indica* Linn.) different Parts

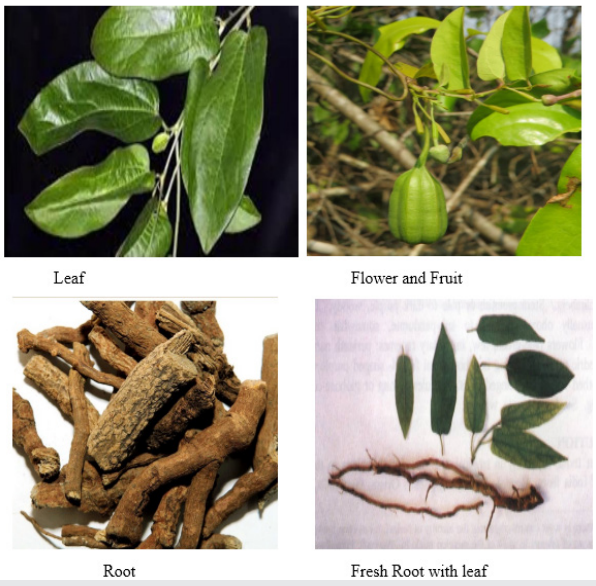


Table 1: Preliminary phytochemical of Root of *Ishwari*

Test	Test/Extract	PE	CE	ME	EE	*Kwatha*	*Hima*	*Phanta*
Protein	Amino acids	-	-	+	+	+	+	+
	Nitro derivatives of amino acids	-	-	+	+	+	+	+
	Sulphur test	-	-	+	-	+	+	+
Glycoside	Molisch's test	-	-	-	-	+	+	+
	Conc H_2SO_4 test	-	-	-	-	+	+	+
Saponin	Foam test	+	+	+	+	+	+	+
Phenol	Phenol test	-	-	-	+	+	+	+
Flavonoid	Aqueous NaOH	-	-	+	+	-	-	-

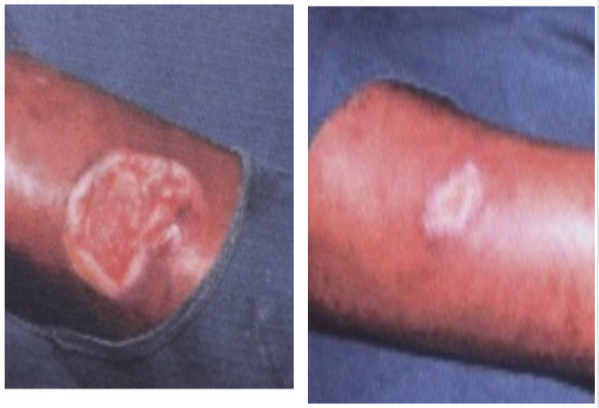
CE - Chloroform extract; EE - Ethanol extract; ME - Methanol extract; PB - Petroleum ether

Table 2: Assessment criteria statistical result

Parameter	Group	No. of Pts	BT mean	AT mean	Paired 't' test			
					Diff.	S D	't'	*P*
Pain	Control	10	1.8	1.1	0.700	0.483	4.583	0.001
	Trial	10	2.4	0.8	1.600	0.843	6.000	=<0.001
Burning	Control	10	2.2	1.2	1.000		0.471	6.708
	Trial	10	1.3	0.2	1.100	0.994	3.498	=0.007
Itching	Control	10	1.6	1.2	0.400	0.699	1.809	= 0.104
	Trial	10	2.2	0.4	1.800	0.919	6.194	=< 0.001
Tenderness	Control	10	2.0	1.3	0.700	0.483	4.583	= 0.001
	Trial	10	2.0	0.7	1.300	0.823	4.993	= <0.001
Discharge	Control	10	2.7	1.0	1.700	0.483	11.129	= <0.001
	Trial	10	2.0	0.3	1.700	0.483	11.129	= <0.001
Smell	Control	10	2.1	1.4	0.700	0.675	3.280	=0.010
	Trial	10	1.1	0.2	0.900	1.197	2.377	=0.041
Granulation Tissue	Control	10	2.9	1.1	1.800	0.422	13.500	=<0.001
	Trial	10	2.7	0.5	2.200	0.422	16.500	= <0.001
Length	Control	10	6.82	6.4	0.420	0.319	4.163	= 0.002
	Trial	10	3.3	2.3	1.000	0.527	6.000	= <0.001

Statistically significant change (*P* = <0.001), SD-Standard Deviation BT-Before Treatment. AT-After Treatment

Figure 2: Wound before and after treatment



reduce burning sensation of the patient. As wound was taken choronic, the discharge of the wound was still continued in the initial phase of the treatment. The Antimicrobial activities of Ethanolic extract of the drug has stronger antimicrobial activity against the fungi than that of the bacteria.[13-16]

5. CONCLUSION

The local folk practitioners are source for adding on our existing knowledge to explore the therapeutics. The assessment criteria have shown better results in almost all of its parameters. Hence the Drug *Ishwari Moola Kalka Alepa* was observed efficacious in patients of *Dushtavrana* as an external treatment.

SOURCE OF SUPPORT

Nil

Table 3: Comparison between the groups statistical result

Parameter	Group Name	Number of Pts.	Missing	Mean	SD	SEM
Pain	Control	10	0	0.700	0.483	0.153
	Trial	10	0	1.600	0.843	0.267
Burning	Control	10	0	1.000	0.471	0.149
	Trial	10	0	1.100	0.994	0.314
Itching	Control	10	0	0.400	0.699	0.221
	Trial	10	0	1.800	0.919	0.291
Tenderness	Control	10	0	0.700	0.483	0.153
	Trial	10	0	1.300	0.823	0.260
Discharge	Control	10	0	1.700	0.483	0.153
	Trial	10	0	1.700	0.483	0.153
Smell	Control	10	0	0.700	0.675	0.213
	Trial	10	0	0.900	1.197	0.379
Floor and Granulation Tissue	Control	10	0	1.800	0.422	0.133
	Trial	10	0	2.200	0.422	0.133
Length	Control	10	0	0.420	0.319	0.101
	Trial	10	0	1.000	0.527	0.167
Width	Control	10	0	0.470	0.377	0.119
	Trial	10	0	0.650	0.337	0.107

Statistically significant change (P = <0.001), SD-Standard Deviation SEM-Standard Error Mean

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

CONTRIBUTORS

Dr Mohammed Faisal did complete work on the clinical study. The Statistical application was done with the support of Dr Shrikanth P. The Phytochemical study and edition of manuscript to the final format was done by Dr Sunil Kumar KN.

ABBREVIATIONS

CE: Chloroform extract; **EE:** Ethanol extract; **ME:** Methanol extract; **PB:** Petroleum ether; **SD:** Standard Deviation; **SEM:** Standard Error Mean; **BT:** Before Treatment; **AT:** After Treatment; **RCT:** Randomized clinical trial; **PPBS:** Post Prandial Blood Sugar; **FBS:** Fasting Blood Sugar.

SUMMARY

Preliminary phytochemical study of Ishwari (Aristolochia indica Linn) root was carried out. 20 Patients attending the I.P.D. & O.P.D. of S.D.M. Ayurveda Hospital, Udupi were taken for the study as Control group and Trial group of ten in each and cleaned with Hydrogen Peroxide and applied root paste to the respective group. The result has shown very significant result management of Dushta Vrana.

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