

# To Study the Effect of Loh-Pindanirvapan Procedure in Purification of Water

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## ABSTRACT

Life on earth is impossible without water. Water is not only a vital environmental factor to all forms of life, but it has also a great role to play in socio-economic development of human population. Safe drinking water is a basic element of primary health care. Purified water is an essential factor in the economic, social and cultural development of a community. It can eliminate disease promote rural development and improve quality of life. Purification of water is of great importance in community medicine. While talking about purified water we should mention some Ayurvedic Jalshuddhikaran methods. Loh-Pindanirvapan method is one of the known methods. In this experimental study we conclude that the properties of Loh-Pindanirvapan water are better than the properties of River water. In some of the properties the Loh-Pindanirvapan water is also better than boiling water.

**Key words-** safe drinking water, jalshuddhikaran, River water, Loh-Pindanirvapan.

## INTRODUCTION

Water is a necessary component of life. Whole World Is Covered with Water and Nothing Is Possible without Water for Either the Healthy persons or for the Patients. Life on earth is impossible without water.

AcharyaCharaka emphasizes on maintenance of health. One should take care of his body by neglecting all other things because if body is not healthy then nothing is existing. Word swastha comprises of swa meaning one's own and stha means staying i.e. being in one's own natural state. Swasthavritta mainly focus on maintenance of health of healthy one.

Drinking sufficient amount of water is one of the most important steps in achieving and maintaining proper health but we must consider drinking purified water rather than river or well water because it may be contaminated with many different substances including organic and inorganic

matters, chemicals and microorganism such as viruses, bacteria, parasites causing various water-borne diseases. Drinking purified water is one of the essential public health care element. Water in the form of rain, when it falls down to earth it picks up the pollutants present in the atmosphere. When rainwater flows over, or seeps through soil, it absorbs the salts, minerals and radioactivity present there in. When people or animals defecate in the open or near riverbanks, the organic matter finds its way to water. This is the organic waste contamination of water. When industries discharge their untreated effluent into a river, chemical waste of contamination of water takes place. Water needed for human being should be both safe and wholesome Means it should be free from pathogenic agents, free from harmful Chemical substances pleasant to the taste, free from color and odor usable for domestic purposes. Water is said to be polluted or

contaminated when it does not fulfill the above criteria. Water pollution is a growing hazard in many developing countries.

Impure water was known as 'Kalusha' water. Impure water, when consumed is known to aggravate any one or all the three doshas in the body. Polluted water is known to have caused several epidemics of water borne diseases. Provision of safe and adequate water to human population is essential for health. Purification of water is of great importance in community medicine. While talking about purified water we should mention some ayurvedic Jalshuddhikaran methods. Loh-Pindanirvapan method is one of the known methods. Water which is polluted should be boiled or it should be exposed to sunlight or red hot iron ball, sand and mud lumps should be put into the water which will make the water pure.

#### **Aim and Objectives**

- 1) To Study the JalshuddhikarPrabhav of Loh-Pindanirvapan.
- 2) To explore the concept of nirvap as shuddhikaran kriya.
- 3) To assess the various properties of Loh-Pindanirvapan Jal in comparison to boiled water (Control group).

#### **Water pollution:**

In nature totally pure uncontaminated water does not occur. It contains mainly two types of impurities, natural and manmade. The natural impurities are not so dangerous. These are dissolved gases e.g. Nitrogen, carbon dioxide, hydrogen sulphate etc. which may be picked up during rainfall and dissolved minerals e.g. salts of calcium, magnesium, sodium etc. Which are natural constituents of water following its contact with soil and suspended impurities (clay, silt, sand and mud) and microscopic organisms. These impurities are derived from the atmosphere, catchments area and the soil. Manmade water pollution is serious which is caused by human activity like urbanization and industrialization.

#### **MATERIALS**

- 1) LohPind (Iron Ball) - Weight 750 gram

- 2) Charcoal
- 3) Furnace with blower
- 4) River water – 9 liter
- 5) Iron Tongs
- 6) Stainless steel vessels
- 7) Three sterile glass bottle having capacity 500ml
- 8) Gas burner
- 9) Lighter

#### **METHODS**

Each and every time before collection of river water the bottles with caps were sterilized.

While collecting the water the precaution was taken that water will not get to much disturbed. The water was collected with the help of long fiber rod having glass bottle.

Then sterilized caps well fitted to bottles. Every time these bottles were labeled with sample no 1, 2 and 3 and kept for analysis.

Water analysis should be started within 6 hours of water collection.

The information sent with water sample was as follow.

- 1) Sample number
- 2) Place of water collection
- 3) Date and time of water collection.

The reports of water analysis were collected time to time, arranged in tabulated form and analyzed.

#### **A. Study Group (Loh-Pindanirvapan)**

Three Liter of water was collected from the nearest river and pours it in a stainless steel vessels. Then LohPind (Iron Ball) was heated over burning coal in furnace constantly till it becomes red hot. Then red hot iron ball was taken out from the furnace and deep into stainless steel vessel containing water by using tong. This procedure should be repeated till the water starts to boil. To get water boil the procedure was repeated four times.

#### **B. Control Group (Boiled Water)**

Three Liter of water was collected from the nearest river and pours it in a stainless steel flask. Then it was heated over burner for 10 minutes in "rolling boil" manner. After 5 minutes the boiled

water was collected in sterile glass bottle having 500 ml capacity. It was stored, labeled well and kept for analysis. As per schedule decided from three water samples 500ml of water was collected in

sterile glass bottles was labeled well and sent water For physical, chemical and bacteriological analysis to the laboratory.

## OBSERVATION AND RESULT

**Table No. 1: Table showing comparison of Ayurveda parameters of three samples**

Sr.No.	Parameters	Sample		
		I (River water)	II (Lohapindnirvapak water)	III (Boiled water)
1	Sparsha	Sheet	Ushna	Ushna
2	Rupa	Apardarshak .peet	Apardarshak	Apardarshak, peet
3	Rasa	Kashay	Ruchihin	Ruchihin
4	Gandha	Gandhhin	Durgandha	Gandhhin

**Table No. 2: Table showing comparison of physical parameters of Three samples.**

Sr. no.	Parameters	Sample		
		I	II	III
1	Appearance	Turbid pale yellow	Turbid colorless	Turbid pale yellow
2	Taste	Bitterastringent	No taste	No taste
3	Odor	Odor less	Foul	Odor less
4	Temperature	28 °C	29 °C	62 °C

**Table No 3: Table showing comparison of chemical parameters of Three samples**

Sr. no.	Parameters	Sample (values in mg/Lit.)		
		I	II	III
1	Ph	8.43	8.64	8.21
2	Total hardness	352	88	300
3	Chlorides	130	50	148
4	Nitrates	1.52	1.80	4.13
5	Nitrites	0.08	0.08	0.10
6	Fluorides	0.29	0.03	0.12
7	Carbonate	10	24	Nil
8	Bicarbonate	303	10	254
9	Potassium	2.9	2.6	3.9
10	Sodium	112	42	130
11	Iron	<0.01	<0.01	<0.01

**Table No.4 Table showing comparison of microbiological (bacteriological) analysis of Three Samples**

Sr. no	parameters	Samples /100ml		
		I	II	III
1	MPN	20	2	Nil
2	E.coli	10	Nil	Nil

## DISCUSSION

Water which is polluted, a red hot iron ball should be put into the water which will make the water pure. Each and every time before collection of river water the bottles with caps were sterilized. For the study purpose as per schedule decided the water samples sent for physical, chemical and bacteriological analysis to the laboratory by taking proper precautions to avoid contamination.

For assessment water Samples were studied with ayurvedic and modern aspects.

- In view of ayurvedic aspects loh-pindnirvapan water becomes more clean and clear and acceptable than compared to river water.
- In view of the physical parameters, the loh-pindnirvapan water shows positive effect from turbid pale yellow appearance to turbid colourless appearance, astringent taste to tasteless and clear with acceptable taste.
- In view of chemical parameters almost all parameters of loh-pindnirvapan water shows positive changes because almost all chemical parameters of loh-pindnirvapan water comes to normal guideline value as per W.H.O. but For Ph value are slightly higher than prescribed normal limits which are not suitable for drinking.

- In view of microbiological aspects the MPN shows positive effect in loh-pindnirvapit water, where number of MPN per 100 ml is 20 MPN per 100ml in river water and reduces from 20 MPN to 2 MPN per 100ml in loh-pindnirvapit water and not detected in boiling water. Whereas the E.coli are 10 per 100ml in river water and it not detected in loh-pindnirvapit water and boiling water.

## **CONCLUSION**

The properties of loh-pindnirvapit water are better than the properties of River water. In some of the properties the loh-pindnirvapit water is also better than boiling water. There are definitely positive changes in almost all physical, chemical and microbiological parameters in the loh-pindnirvapit water due to effect of Loh-Pindanirvapan. In the present study till there are some impurities like Ph value as a chemical and present of MPN as microbiological in loh-pindnirvapit water. In

the present study bacterial contamination i.e. E.coli was nil and number of MPN are reduced from 20 MPN/100ml to 2 MPN/100ml in loh-pindnirvapit water. In the present study river water, loh-pindnirvapit water and boiling water all are unfit for drinking as per the guideline values given by W.H.O. For confirmation more study was required in this regard.

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