

# A Double Blind Randomized Placebo Controlled Homoeopathic Pathogenetic trial of *Rhus Toxicodendron*

K. Rajamaickam<sup>1</sup>, Geetha<sup>2</sup>

## Abstract

**Objective:** The study was conducted to elicit the pathogenetic response of *Rhus toxicodendron* in 30C potency on healthy human volunteers.

**Methodology:** The proving of drug *Rhus toxicodendron* was conducted in the Department of Homoeopathic Pharmacy, Vinayaka Mission's Homoeopathic Medical College and Hospital, Salem, through randomized, double-blind, placebo-controlled study. The drug was proved in 30th centesimal potency on 36 apparently healthy volunteers who were selected after conducting pre-trial medical examinations by the medical specialists and routine laboratory investigations. 18 of them were kept on interventional drug trial and remaining, under placebo. As per the proving protocol, 56 dose schedule [i.e., 56 doses of drug/placebo were consumed by a prover in each batch] was followed. The symptoms generated during the trial period were noted by the volunteers and elaborated by the proving masters which were compiled at Homoeopathic drug proving cum data processing unit of the department.

**Result:** Out of 18 provers who were on the interventional drug trial, only 16 manifested symptoms. The drug was able to produce symptoms in 30C potencies. Totally 17 new symptoms have appeared.

**Conclusion:** The drug pathogenesis evolved indicates its therapeutic use for Chilblains, Cough, Dengue fever, Dysentery, Diarrhoea, Enteric fever, Eczema, Gout, Headache, Lumbago, Neuralgia, Paralysis,

Restlessness, Rheumatism, Sciatica, Sprains, etc.

## Introduction

*Rhus toxicodendron* (RT) also known as 'poison ivy', belongs to the family Anacardiaceae. Information regarding experimental proving of the biological activities of this homoeopathic drug is available in scientific literature. The fresh leaves of RT contain a volatile principle called toxicodendrol which contains a complex active principle urushiol. In homeopathy, the mother tincture of RT is not frequently used in treatment but all higher dilutions are manufactured using it.

Freshly cut stem of RT showing adventitious roots and black lacquer oozing from resin canals in the inner bark. The resinous sap is produced in resin canals of the stems, roots, leaves and flowers. J.H. Langenheim (2003) discusses resins of the sumac family (Anacardiaceae) in her book entitled *Plant Resins: Chemistry, Evolution, Ecology, and Ethno botany*. Cross sections of RT stems show distinct concentric annual rings (ring-porous wood). Numerous resin canals appear as tiny black dots and are confined to the phloem

<sup>1</sup>Guide & HOD

**Address for correspondence**

**Dr. K. Rajamaickam**

Vinayaka Mission's Homoeopathic Medical College  
[A Constituent College of Vinayaka Mission  
Research Foundation (Deemed University)],  
Salem, Tamil Nadu

layer just inside the bark which principally contains urushiol responsible for giving poison oak its bad reputation due to its involvement in promoting allergic reaction.

The name of *Rhus toxicodendron* was derived from “urushi,” Japanese name for lacquer made from the sap of the Japanese lacquer tree (“kiurushi” or “urushi ki”). Urushiol is a transparent, nonvolatile olioeresin which turns into a brownish lacquer when oxidized. It is basically a mixture of phenolic compounds called catechols. A catecholamine (CA) is a monoamine [an organic compound that has a catechol (benzene with two hydroxyl side groups) and a side chain amine] potent benzene ring compounds with a long side-chain of 15 or 17 carbon atoms. According to Dawson the side chain may be saturated or unsaturated with one, two, or three double bonds. The remarkable immune reaction and specificity of the catechol molecule is determined by the long side-chain. Poison oak urushiol contains mostly catechols with 17 carbon side-chains (heptadecylcatechols), while poison ivy and poison sumac contain mostly 15 carbon side-chains (pentadecylcatechols).

In the homeopathic preparation of RT it is serially diluted from the mother tincture and potentized at each step. Its symptom producing capability is assessed through a procedure known as ‘proving’. Homeopathy stands on the law “**Similia Similibus Curantur**”. It means which can produce the disease in crude form the same can cure the same disease in its potentized form. This law was established by Dr. Samuel Hahnemann in 1796, after proving of Chinchona bark on himself which produced malaria like symptoms in crude form.

“Double blind trials have been conducted using the homeopathic remedy RT. In a study published in British Medical Journal, 30 patients were randomly assigned to receive either *Rhus toxicodendron* (6c potency) put up on 125 mg lactose or identical placebo tablets three times per day in cases of primary fibromyalgia. This was a cross-over study with treatment phases of 1 month each in random sequence. Patients receiving the active treatment had significantly fewer tender points ( $P < 0.005$ ), improved pain and sleep ( $P < 0.005$ ), as assessed by visual analogue scale. Only patients in whom ‘*Rhus toxicodendron* was positively indicated

after a homeopathic consultation’ were included in this trial.

In another study using RT 4×, 30×, 30c and 200c, it was observed that RT increased the mRNA expression of COX-2, and stimulation with 30× RT showed the most prominent mRNA expression in both RT-PCR and qRT-PCR analyses. RT also inhibited collagen type II expression, suggesting that RT induced the dedifferentiation of chondrocytes. Further, it was also observed that RT 30× significantly increased PGE2 release compared with other homeopathic dilutions of RT. These results indicate that homeopathic treatment with RT induced chondrocyte dedifferentiation and inflammatory responses, such as COX-2 expression and PGE2 production, in primary cultured chondrocytes.

### Scientific classification

**Botanical name:** *Rhus toxicodendron* Mich.

**Family:** Anacardiaceae **Common names:** English: Poison ivy, Poison ash;

**French:** Arbre a poison, vénéneux;

**German :** Gift Sumach, Wurtzel Sumach.

### Description

A deciduous shrub with reddish, branching stem up to 1m high or climbing by rootlets. Leaves alternate, ternate, the lateral leaflets unequal at the base and sessile, the terminal one larger at the end of prolongation of the common petiole, rhombic-ovate, pointed. Flowers small, greenish white, polygamous; and in loose and slender axillary panicles.

Whole plant is resinous, milky, acrid juice, staining black and extremely poisonous.

### Distribution

In the forests of the United States.

### Objective

The study was conducted to elicit the pathogenetic response of *Rhus toxicodendron* 30 Homeopathic potency on healthy human volunteers

### Materials and Methods

#### Study design

The study was a randomized, double-blind, placebo-

controlled trial.

### **Part used in homoeopathy**

Leaves

### **Potencies used in the trial**

30C

### **Participants**

The Homoeopathic pathogenetic trial was conducted at Vinayaka Mission's Homoeopathic Medical College, Salem (VMHMC). Total 36 apparently healthy volunteers from above-mentioned institute between the age group of 18 to 25, comprising 23 males, and 13 females were included in the homoeopathic pathogenetic trial. Pregnant women and lactating mothers were excluded before enrolling the volunteers as provers, and all of them were screened by the experts as per Institutional Drug Proving Protocol.

'Written informed consent' from each volunteer was obtained before starting the trial. Pre-trial Medical Examination (PME) and Terminal Medical Examination (TME) of the volunteers were carried out by General Physicians, Psychiatrists, ENT Specialists, Dermatologists, Gynaecologists, Radiologists and their routine laboratory investigations at the centers to ascertain their health status. After recommendation of experts, healthy volunteers were enrolled in the Homeopathic Pathogenetic trial Programme. The sample size included 50% provers under control group at each center. So, out of 36 provers, 18 were kept on drug and 18 were on placebo (control) in all two batches placebo,

and 30C potency. All the provers were assigned code numbers and the coded drugs in 30C potencies and placebo were supplied in separate glass phials bearing code numbers of the respective volunteers; keeping both provers and proving masters blind. In addition a glass phial containing antidote was also kept with each batch.

### **Interventional drug**

Rhus toxicodendron 30C potencies in sealed bottles from licensed manufactures of homoeopathic medicines was medicated in globules number 30 at the VMHMC.

### **Placebo**

Placebo was made up of plain globules (number 30) moistened with plain dispensing alcohol (unsuccussed).

### **Methodology of proving**

As per the Institutional Drug Proving Protocol based on Drug Proving Protocol laid down by Central Council for Research in Homoeopathy, 56 dose schedule was followed. It was divided into 4 doses per day for fourteen days.

Phase-I: Placebo phase. It is useful in generating prover's response to placebo and therefore symptoms generated by the prover in this stage act as control (intra prover) for subsequent phases.

Phase-II: In 2nd phase, the proving was conducted with 30C potency of the drug and during this phase 50% provers consumed placebo only. Other 50% of provers administered with placebo.

Dose schedule: The provers were instructed to take 4 globules of a particular batch of the coded drug, four times a day, dry on tongue. Provers were instructed to note down the details of their feelings/changes in mind and body on daily basis, after taking the coded drug/ placebo in 'Prover's Day Book Proforma'.

If no signs/ symptoms appeared, provers noted down as 'No Symptom' with date and time of intake of the respective dose of the drug/placebo.

If signs/ symptoms appeared, provers were asked to stop taking the coded drug as soon as he/she felt any change or any signs and/or symptoms developed during the trial. The prover noted down the sequence of the appearance of new signs and/ or symptoms, their progress and the number of doses after which such signs and symptoms appeared, with date, time of onset and duration for which they persisted. Any change in normal routine of the prover in respect of daily habits pertaining to diet, living conditions etc./any treatment taken were also noted in the Prover's Day Book Proforma. Intake of drug remained suspended till the signs and symptoms totally disappeared.

After disappearance of signs and symptom produced by the drug, the volunteer had to wait further for a period of 07 days before taking the

remaining doses of that batch following the same dose schedule as stated above. In case of further appearance of new signs and symptom, the same procedure as stated above was followed till all the 56 doses were consumed. If the prover was experiencing the same symptoms what he/she had already shown, he/she was asked to stop that particular batch and to switch over to the next batch after a washout period of 14 days (symptom free period between two phases of drug proving in which a volunteer does not take drug).

Each volunteer was interrogated by the Proving Master to verify the signs and symptoms recorded by the volunteer in respect to locations, sensations, modalities and concomitants, extension of symptoms, causation, clinico-pathological findings and other treatment taken, if any, in 'Symptoms Elaboration Proforma'.

During the course of trial, the volunteers were referred for specific laboratory investigations to rule out any other cause of appearance of new signs and symptoms. The opinion of the specialists (Honorary consultants) was also obtained, wherever needed.

After completion of trial of three phases, the provers underwent Terminal Medical Examination. On completion of all the respective phases of the pathogenetic trial programme, the compilation of data recorded in 'Prover's Day Book Proforma', 'Symptoms Elaboration Proforma', 'Pathological Report Sheets' and 'Terminal Medical Examination sheets', were made at the Vinayaka missions homoeopathic medical college by the Department of homoeopathic pharmacy. After decoding, the signs and/or symptoms produced by the provers kept on the interventional drug were separated from those produced by the provers kept on placebo. The sign and/or symptom, which were common to both the groups, were not taken into consideration while compiling the symptomatology of the proved drug.

### Management of adverse effects

A vial of antidote was sent with each quota to each center. In this trial *Camphora* 6C was used as Antidote as it is believed that *Camphora* can antidote nearly every vegetable medicine. The Proving Master gives

antidote to the prover if symptoms continue for a long time or intensity is much to cause discomfort. Proving Master is also directed to take advice of honorary consultants and to get laboratory investigations done, if required.

### Pathogenetic effects

Pathogenetic effects (trial symptoms) are defined as all changes in clinical events and laboratory findings reported by the volunteers during a Homoeopathic Pathogenetic Trial and recorded in the final report. The incidence of pathogenetic effects per volunteer is defined as the total number of findings observed in the trial divided by the total number of provers.

Pathogenetic effects were deduced from:

- Comparison of symptoms developed in placebo phase with symptoms during intervention phases (intra-prover comparison)
- Comparison of symptoms developed by the provers on control (for all for phase) with provers on actual verum trial (inter-prover comparison)

### Results

Out of 18 provers who were on the interventional drug trial, only 16 manifested symptoms. The drug was able to produce symptoms in 30C potencies; 17 symptoms appeared during proving [Table 1].

### Discussion

In the present Homoeopathic Pathogenetic Trial of RT, 18 symptoms appeared in 16 provers. Most of the provers develop frontal headache, heavy headache, sore throat, tongue dry, Tickling sensation in throat, recorded these symptoms present in condensed *Materia medica* by C. Herring. Severe body pain, Head heavy, vertigo when standing or walking, lameness, stiffness and pain on first moving after rest, Rheumatic pains spread over a large surface at nape of neck, loins, and extremities; worse cold, wet rainy weather, at night, during rest. better motion, walking, change of position these symptoms are present in Boericke's *Materia medica*.

**Table 1: Symptoms produced following 56 dose schedule**

Location	Symptoms observed	No.of provers	Potency	Doses	Duration (indays)
Head	Frontal headache, Heavy headache,Vertigo when walking or standing	3	30C	38	2
Mouth	Bitter taste in mouth	2	30C	36	3
Throat	Sore throat , Restless, severe body pain, tongue dry, Tickling sensation in the throat	3	30C	52	1
Extremities	Lameness, stiffness and pain on first moving, after rest, <At night, dry weather, > Motion, warm.Walking.	3	30C	40	4
Abdomen	Diarrhoea,abdomen pain relieved by lying on abdomen	3	30C	40	1

3 provers developed Frontal headache, Heavy headache, Vertigo when walking or standing, Sore throat, Restless, tongue dry, Tickling sensation in the throat, Lameness, stiffness and pain on first moving after rest, Soreness of condyles of bones. Out of these symptoms Frontal Heavy headache, Lameness, stiffness and pain on first moving after rest, at night, dry weather, better motion, walking, warm is more prominent. Absence of any symptoms from male and female genitalia is conspicuous. Throat and Extremities symptoms are more prominent in 3 provers out of 18 provers.

Following symptoms may also be considered as guiding symptoms:

- Head feels as if a board were strapped on the forehead
- Vertigo when rising.
- Heavy head.
- Scalp sensitive; worse on side lain on.
- Headache in occiput
- Pain in forehead and proceeds thence backward.
- Sneezing; coryza from getting we
- Teeth feel loose and long; gums sore.
- Tongue red and cracked; coated, except red triangular space at the tip; dry and red at edges.
- Diarrhoea of blood, slime, and reddish mucus.

- Dysentery, with tearing pains down thighs. Stools of cadaverous odor.
- Pain between shoulders on swallowing.
- Pain and stiffness in small of back; better, motion, or lying on something hard: worse, while sitting.
- Stiffness of the nape of the neck.
- Hot, painful swelling of joints. Pains tearing in tendons. Ligaments and fasciae.

## Conclusion

The drug pathogenesis evolved indicates its therapeutic use for migraine, septic conditions, Cellulitis and infection, septicaemia, Rheumatism, Typhoid fever, fibrous tissue affections. However, the medicine deserves our attention in the future and more clinical experiences should be forthcoming through further clinical verification.

## Acknowledgements

Authors acknowledge the support and contribution of Dr.A.Nagarajan Principal & Dr.E.S. Rajendhran, Director of Vinayaka Mission's Homoeopathic Medical College and Hospital, Salem for preparing the final draft of the manu script of the publication.

## Bibliography

1. *Allen HC. Key notes Rearranged and classified with the leading remedies of the MateriaMedica and*

- Bowel Nosodes. Tenth edition. B. Jain Publishers (p) Ltd. New Delhi; 2007: Pages 259-261*
2. Hemant P Jadhav et al., Standardization of homeopathic mother tincture of *Toxicodendron pubescens* and correlation of its flavonoid markers with the biological activity *Homeopathy, Elsevier, Volume 105, 2016: Pages 48-54*
  3. C. Herring, *Condensed material medica, Fourth edition. B. Jain Publishers (p) Ltd. New Delhi; 2017: Pages 804-812*
  4. Dantas F, Fisher P, Walach H, Wieland F, Rastogi DP, Teixeira H et al. A systematic review of the quality of homeopathic pathogenetic trial published from 1945 to 1995. *Homeopathy. 96 (1), 2007 Jan: Pages 4-16*
  5. Suman Bagchi et al., Simile between the Modus operandi of Analgesia of Tradmol and Poison Oak (*Rhustoxicodendron*) on Fibromyalgia, *Innovare Journal of Medical Sciences, volume 3, Issue 1, 2015: Pages 1-3*
  6. William Boericke, *Pocket manual of homeopathic material medica & repertory, Low priced edition. B. Jain Publishers (p) Ltd. New Delhi; 2007-2008 : Pages 552-556*
  7. **Ashmin Sultana et al, Usefullness of Angiospermic plants in Homeopathy System of medicine, International journal of pharmaceutical research and Bioscience, vol 4, Issue 3, 2015, pages 291-309.**
  8. **Kyung Jin Lee , MyeongGu Yeo, Homoeopathic *Rhustoxicodendron* has dual effects on the inflammatory response in the mouse preosteoblastic cell line MC3T3-e1, Homeopathy, vol 105, 2015, pages 42-47**
  9. P. N. Varma, Indu Vaid, *Encyclopaedia of Homoeopathic Pharmacopoeia, Updated edition 2007, B. Jain Publishers, New Delhi.*
  10. *Homoeopathic Pharmacopoeia of India, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy, Ministry of Health and Family Welfare, Government of India.*
  11. Fisher P, Greenwood A, Huskisson EC, Turner P, Belon P. Effect of homoeopathic treatment on fibrositis (primary fibromyalgia), *Br Med J, 1989, vol. 299 (pg. 365-6)*
  12. Huh YH, Kim MJ, Yeo MG. Homeopathic *Rhustoxicodendron* treatment increased the expression of cyclooxygenase-2 in primary cultured mouse chondrocytes. *Homeopathy. 2013 Oct;102(4):248-53.*
  13. Central Council for Research in Homoeopathy, Drug Proving Protocol. Retrieved from: <http://ccrhindia.nic.in//admnis/admin/showimg.aspx?ID=3468>. Accessed on 1st August 2018