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Efficacy of *Rhus toxicodendron* 1m in osteoarthritis: A retrospective analysis using WOMAC scale and Naranjo criteria

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Abstract
Background: Osteoarthritis (OA) is one of the most prevalent forms of arthritis and a leading cause of physical disability globally. Conventional treatment options often involve long-term pharmacologic therapy or surgery, prompting interest in alternative modalities like homeopathy.
Objective: To assess the clinical efficacy of *Rhus toxicodendron* 1M in managing osteoarthritis symptoms using the Western Ontario and McMaster Universities Arthritis Index (WOMAC) and Naranjo criteria.
Methods: A retrospective observational study was conducted involving 30 patients diagnosed with primary OA of the knee or hip who were treated with *Rhus tox* 1M between January 2020 and January 2025. Patients were assessed using the WOMAC scale for pain, stiffness, and physical function before and after treatment. Causality of clinical improvement was evaluated using the Naranjo criteria adapted for homeopathy.
Results: Patients showed significant improvement in WOMAC scores post-treatment. The majority of patients reported reduced pain and improved physical functioning. Naranjo scoring indicated a probable relationship between the homeopathic intervention and clinical improvement.
Conclusion: *Rhus toxicodendron* 1M may offer a beneficial, cost-effective treatment option for OA, especially for populations seeking non-invasive and low-risk alternatives. Further controlled trials are recommended.

Keywords: *Rhus toxicodendron*, WOMAC scale, Naranjo criteria, homoeopathy

Introduction
Osteoarthritis (OA) is one of the commonest forms of arthritis, one of the most prevalent types of arthritis and a major contributor to physical disability and death. The fourth most common cause of "Years Lived with Disability" (YLDs), making up 3.0% of all YLDs worldwide, is osteoarthritis. It is also to blame for the decline in "Activities of Daily Living" (ADL) among the community's elderly dependent population.
The progressive, degenerative joint disease known as Osteoarthritis (OA) is typified by the degeneration of articular cartilage, subchondral bone remodelling, the development of osteophytes, and variable levels of synovial inflammation. It is the most prevalent type of arthritis in the world and a leading contributor to long-term pain and disability in adults over 50. OA predominantly affects large, weight-bearing joints, especially the knees and hips, but may also involve the spine and hands
Over 528 million individuals worldwide suffer from OA, and as the population ages and obesity rates rise, so does the disease's prevalence. As per the Global Burden of Disease (GBD) 2019 study, OA is the fourth leading cause of Years Lived with Disability (YLDs) globally, contributing around 3.0% of all YLDs.
Between 22% and 39% of adults over 50 have OA, making it the second most prevalent rheumatologic condition in India. The condition is more common in perimenopausal and postmenopausal women, according to studies. This is believed to be because of a drop in estrogen levels that impacts bone metabolism and joint cartilage.
Joint space narrowing, subchondral bone sclerosis, osteophyte formation, and cysts on X-rays are among the radiologic indicators used to make the diagnosis, along with clinical symptoms like joint pain, morning stiffness that lasts less than 30 minutes, and decreased joint function. Despite the availability of treatment options, many patients either receive

insufficient relief or are burdened by the high expenses and adverse effects of joint replacement surgery or long-term pharmaceutical therapy.

The fresh leaves of Toxicodendron radicans, a plant native to North America and a member of the Anacardiaceae family, are used to make *Rhus toxicodendron*, also referred to as poison ivy. As directed by the Homoeopathic Pharmacopoeia of India (HPI), the homeopathic remedy is made by serial dilution and succussion.

The remedy's primary and secondary effects in healthy individuals were first demonstrated by homeopathic founder Dr. Samuel Hahnemann in his classic work, the Materia Medica Pura. Rhus tox is categorized under treatments that impact the nervous, integumentary, and musculoskeletal systems. It is recommended for conditions that deteriorate at rest and get better with movement, which is a defining sign of osteoarthritis.

There is an urgent need for reasonably priced and efficient treatment options due to the chronic nature and high prevalence of osteoarthritis, particularly in India's elderly population. A promising option is homeopathy because it is inexpensive and minimally invasive. The effectiveness of *Rhus toxicodendron* 1M, which has anti-inflammatory and rheumatic properties in homeopathy, was assessed in OA patients using a retrospective analysis. Standardized outcome measures, such as the WOMAC scale and Naranjo criteria, were employed to objectively assess symptom relief and therapeutic causality.

Objectives

To assess the clinical efficacy of *Rhus toxicodendron* 1M in patients with osteoarthritis using validated outcome measures, the WOMAC Scale for pain, stiffness, and physical function, and the Naranjo Adverse Drug Reaction Probability Scale to evaluate causality between the intervention and clinical improvement.

Materials and Methods

Study design

A retrospective observational study was conducted to evaluate the clinical efficacy of *Rhus toxicodendron* 1M in the management of osteoarthritis. The study involved analysis of patient records from January 2020 to January 2025 at Sarada Krishna Homoeopathic Medical College and Hospital.

Sample size

The study included a total of 30 patients diagnosed with primary osteoarthritis of the knee and/or hip who met the inclusion criteria and had been treated exclusively with *Rhus toxicodendron* 1M.

Inclusion criteria

- Age group between 50 to 80 years
- Patient from both the sexes
- Patient having symptomatology of osteoarthritis of knee joint and hip joint

Exclusion criteria

- Cases in which surgical intervention becomes necessary
- Patients suffering from other severe systemic diseases and not suffers from any diagnosed pathology
- Pregnant women
- Patient under allopathic medication for osteoarthritis and other diseases

Diagnostic criteria

- Age >50 years
- Morning stiffness <30 mins
- Crepitus on active movements
- Bony tenderness
- No palpable warmth of synovium

Intervention

All patients included in the study were prescribed *Rhus toxicodendron* 1M. The selection, potency, and repetition of the remedy were done based on classical homeopathic principles of individualization. No other homeopathic or conventional medicine was used concurrently.

Assessment tools

1. **WOMAC scale (Western Ontario and McMaster Universities Arthritis Index):** Used to assess the severity of pain, stiffness, and physical functional limitations before and after treatment. It is a validated instrument widely used in osteoarthritis research.
2. **Naranjo adverse drug reaction probability scale (modified for homeopathy):** Applied to assess the likelihood that the observed clinical improvements were causally related to the administration of *Rhus toxicodendron* 1M.

Data collection and analysis

WOMAC scores were recorded for each patient both before and after the course of homeopathic treatment. The difference in scores was calculated to determine the degree of improvement. Descriptive statistics were used to analyze the pre- and post-treatment scores. The Naranjo criteria were applied retrospectively to determine causality classification into definite, probable, possible, borderline possible, or doubtful. A p-value < 0.05 was considered statistically significant

Results

In this study, the therapeutic efficacy of *Rhus toxicodendron* 1M in 30 patients diagnosed with osteoarthritis, using the WOMAC scale to measure changes in pain, stiffness, and physical function. The Naranjo criteria were employed to determine the likelihood of a causal relationship between the remedy and clinical improvement, the detailed resulted are presented below.

A paired t-test was conducted to compare scores before and after treatment score using WOMAC Scale for 30 patients.

- The mean score before treatment was 52.03.
- The mean score after treatment was 30.00.
- The mean difference is substantial, and the test statistic is $t(29) = 16.93$.
- The two-tailed p-value is below 0.05, indicating a significant difference.

The Naranjo Adverse Drug Reaction Probability Scale was used to assess the likelihood of causality between the intervention and the observed clinical effects. Among the 30 evaluated cases, 16 patients (53.3%) scored ≥9, indicating a "Definite" causal relationship between the treatment and the observed effects. Six cases (20.0%) were classified as "Probable" (score 7-8), suggesting a likely association. Four cases (13.3%) fell into the "Borderline Possible" category (score 4-5), implying weak to moderate evidence of causation. These findings reflect a strong causal relationship

in the majority of cases, thereby supporting the therapeutic impact of the intervention as observed in the post-treatment outcomes. P Value is less than 0.05 statistically significant

Area for research

A larger, well-designed prospective studies are warranted to substantiate these findings.

Conclusion

The present retrospective analysis demonstrates that *Rhus toxicodendron* 1M may serve as a clinically effective and statistically significant therapeutic option for managing osteoarthritis. The treatment led to a substantial reduction in WOMAC scores, indicating improvements in pain, stiffness, and physical function. Additionally, Naranjo causality assessment revealed that over 73% of patients fell under "Definite" or "Probable" categories, supporting a strong therapeutic relationship between the intervention and the observed clinical improvement. With a highly significant p-value ($p<0.0001$), the findings underscore the potential utility of *Rhus toxicodendron* in OA management. While encouraging, these results warrant validation through larger, prospective controlled studies to further establish efficacy and reproducibility.

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