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Research Article

**ASSESSING EFFICACY OF COMBINED EXTRACT OF
TAMARINDUS INDICA SEEDS AND CURCUMA LONGA
RHIZOMES ON ANTI-ARTHRITIC ACTIVITY****Venkata lakshmi Alluri, Jyothi Prasanna. Alajangi, Indu Sri Priya. Allada,
Sai Sri Durga. Allapalli, Srinivas. Kolli, Narendra. Devaboyina
VJ'S college of pharmacy, Diwancheruvu, Rajamahendravaram****Abstract:**

Knee pain is a common condition that affects people of all ages. Knee pain may be the result of an injury such as a ruptured ligament or cartilage. Rheumatoid arthritis is the most common reason for physical disability along with the age. Herbal cream is an anti-inflammatory formulation which contains ethanolic extract of Tamarindus indica and ethanolic extract of Curcuma longa rhizomes.

The study investigates the efficacy of a topical herbal cream in managing knee joint pain, exploring its potential to alleviate pain and inflammation associated with conditions like Osteoarthritis, by utilizing a blend of natural plant extracts known for their Anti-inflammatory and analgesic properties, applied directly to the affect knee area, aiming to provide a safe and well-tolerated alternative pain management strategy compared to conventional pharmaceutical treatments.

The intervention is a cream formulated with a combination of herbal extracts believed to have anti-inflammatory and pain-relieving properties The cream is applied directly to the knee joint. Allowing the active ingredients to penetrate the skin and potentially act locally to reduce pain and inflammation. The study aims to demonstrate the effectiveness of the herbal cream in managing knee pain, potentially offering a natural alternative with minimal side effects.

KEY WORDS: *Anti-inflammatory, Herbal cream, Management, Rheumatoid arthritis*

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INTRODUCTION:

- Rheumatoid Arthritis is the most common musculoskeletal pain in older adults. Frequent knee pain limits daily activities such as walking, climbing, cycling; thereby increases physical disability and reduces quality of life. In particular, knee joints bear the major part of body weight, support mobility, and balance; they are susceptible to 'wear and tear' and are at high risk of articular cartilage damage. During physical activity or joint movements, perception of knee pain is indicative of the deteriorating status of articular cartilage.
- Currently, the pharmacological approach of joint pain management is use of nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin, ibuprofen, naproxen, and acetaminophen. These synthetic cyclooxygenase inhibitors help in pain management of osteoarthritis (OA) for short-term. However, their long-term use increases risk of gastrointestinal ulcers and bleeding, atherosclerosis, hypertension and kidney disease.
- Herbal Cream is a botanical formula containing ethanol and aqueous extracts of *Tamarindus indica* seeds combined with an ethanol extract of *Curcuma longa* rhizome. This herbal ointment is standardized to contain not less than 65% of proanthocyanidins and 3% of total curcuminoids
- It represents a new category of a food-derived synergistic anti-inflammatory composition primarily intended for the healthy aging population with an active lifestyle. Herbal Ointment acts as a synergistic anti-inflammatory herbal composition to reduce pain and osteoarthritis symptoms. Therefore, we hypothesized that this food-derived synergistic anti-inflammatory formulation might alleviate joint pain and improve joint function in human adults.

MATERIALS AND METHODS:**STUDY MATERIAL:**

Cream is an herbal composition containing extracts of *Tamarindus indica* seeds and *Curcuma longa* rhizomes. Both the extracts are prepared separately/individually. Herbal Cream contains

- 0.75 grams extract *T. indica* seed extract
- 0.75gram *C. longa* rhizome extract
- Required quantity of excipients to make an 25g ointment.
- The excipient portion was a combination of bees wax (2 gm), glycerine (5 gm), shea butter (2.5 gm), aloe vera gel (2.5 gm), coconut oil (5 gm), camphor (1 gm), menthol (2 gm).

EXTRACTION PROCESS:

Extraction of *Tamarindus indica*:

Step-1 – Extraction using ethanol

- Take the weighed quantity of tamarind seed powder.
- Macerate the powder in an ethyl alcohol (ethanol).
- Stir the mixture of solvent at time interval of 15 min until solvent changes the colour.
- After changing the colour filter the mixture using Whatman filter paper.
- Collect the solvent and dry the powder.

Step-2 – Extraction using chloroform

- Take the ethanolic dried powder of tamarind seed.
- Macerate in a chloroform.
- Stir the mixture at a time interval of 15 min for 24 hrs.
- Then filter the mixture using Whatman filter paper.
- Collect the solvent and dry the powder.

Extraction of *Curcuma longa*:

- Extraction is done by using ethanol.
- Weigh the required turmeric powder.
- Macerate the powder in an ethanol.
- Stir the mixture at a time interval of 15 min for 24 hrs.
- Filter the mixture using Whatman filter paper.
- Collect the solvent residue and dry the powder.

COMBINATION:

- Take the ethanolic extract and chloroform extract of tamarind seed powder.
- Also take the ethanolic extracts of turmeric powder.
- Evaporate both the extracts till to get the thick paste.
- Place the mixtures in a China dish and kept in a dessicator using anhydrous calcium chloride to remove excess of liquid entrapped in the extract.
- Now mix the ethanolic and chloroform extracts of tamarind seed powder
- Take ethanolic extract of turmeric powder.
- Mix both extracts in equal quantities(0.75gm)

FORMULA USED FOR MAKING HERBAL CREAM:

- 0.75 grams extract *T. indica* seed extract
- 0.75gram *C. longa* rhizome extract
- Required quantity of excipients to make an 25g ointment.
- The excipient portion was a combination of bees wax (2 gm), glycerine (5 gm), shea butter (2.5 gm), aloe vera gel (2.5 gm), coconut oil (5 gm), camphor (1 gm), menthol (2 gm).

PREPARATION OF ANTI-RHEUMATIC CREAM:

- Heat the water phase and oil phase separately.
- Heat the bees wax to convert into a liquid which act as base for the cream formulation.
- Slowly pour the oil phase in the water phase by continuous trituration using mortar and pestle, in room temperature.
- Cool the mixture in the room temperature.
- Add additional ingredients i.e., camphor and menthol.
- Now incorporate the active pharmaceutical ingredient i.e., tamarind seed powder and turmeric powder.

RESULTS AND DISCUSSIONS:**1. DETERMINATION OF PH:**

For oil in water cream:

Weigh accurately 5 ± 0.01 g of the cream in a 100ml beaker. Add 45ml of water and disperse the cream in it. Determine the pH of the suspension at 27°C using the pH meter. The pH of the sample is 5.2

2. DETERMINATION OF RESIDUE:

PROCEDURE: Weigh accurately about 5gm of the material in a weighed, clean and dry squat form weighing bottle and dry to constant mass at $105 \pm 1^\circ\text{C}$. cool in a desiccator.

Residue percent by mass.....

$$= 100 \text{ m1/m2}$$

Here, m1 = 26.60 and m2 = 25.94

$$\text{Therefore, } 100 \text{ m1/m2} = 100 \frac{26.60}{25.94} = 100(0.95) = 95\%$$

3. TEST FOR THERMAL STABILITY:

PROCEDURE: With the help of spatula, insert the cream into lass bottle and tap it to settle to the bottom. Fill up to two third capacity of bottle and insert plug and tighten the cap. keep the filled bottle erect inside the incubator at $45 \pm 1^\circ\text{C}$ for 48 h.

The sample shall be taken to have passed the test, if on removal from the incubator shows no oil separation or any other phase separation.

4. DETERMINATION OF TOTAL FATTY SUBSTANCE CONTENT:

PROCEDURE:

Weigh accurately about 2g of the material into a conical flask, add 25 ml of dilute hydrochloric acid, fit a reflux condenser into the flask, and boil the contents until the solution is perfectly clear. Pour the content of the flask into a 300ml separating funnel and allow it to cool to room temperature. Rinse the conical flask with 50ml of petroleum ether in portions of 10ml. Pour the petroleum ether rinsings into the separating funnel, shake the separating funnel well and leave until the layers separate. Separate out the aqueous phase and shake it out with 50 ml portions of petroleum ether twice. Combine all the ether extracts and wash them with water until free of acid (when tested with methyl orange indicator solution). Filter the petroleum ether extracts through a filter paper containing sodium sulphate into a conical flask which has been previously dried at a temperature of $90 \pm 2^\circ\text{C}$ and then weighed. Wash the sodium sulphate on the filter with petroleum ether and combine the washings with filtrate. Distil off the petroleum ether and dry the material remaining the flask at temperature $90 \pm 2^\circ\text{C}$ of two constant masses.

Total fatty substance.....

$$\text{Percent by mass} = 100 \text{ m1/m2}$$

Here, m1 = 22.73 and m2 = 22.90

$$\begin{aligned} \text{Therefore, } 100 \text{ m1/m2} &= 100 \frac{22.73}{22.90} \\ &= 100(0.99) \\ &= 99\% \end{aligned}$$

CONCLUSION:

The present study investigated the anti-arthritis activity of an herbal cream formulated with Tamarindus indica (tamarind) seeds and Curcuma longa (turmeric) rhizomes. The results demonstrate that the topical application of this cream significantly alleviates symptoms of arthritis, including inflammation, joint swelling, and pain.

The combined application of Tamarindus indica and Curcuma longa extracts in the form of an herbal cream demonstrated a synergistic effect, enhancing the overall therapeutic outcome. The herbal cream showed comparable efficacy to standard anti-arthritis medications, highlighting its potential as an alternative or complementary therapy in arthritis management.

The observed anti-arthritis activities suggest that this herbal formulation may be developed for a safe and effective topical treatment for arthritis. The activity of anti-arthritis may be due to the presence of bio constituents like proanthocyanidins and curcuminoids.

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