



**ANTI INFLAMMATORY ACTIVITY OF KARANTHAI RASAYANAM IN ALBINO RATS**

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**ABSTRACT**

Karantthai rasayanam has a long history of use in siddha medicine as a treatment for various skin diseases. Individual ingredients of karantthai rasayanam possess anti inflammatory effect. While numerous pharmacological activities, including antihistamine and analgesic properties, have been attributed to karantthai rasayanam, this article focuses on Karantthai rasayanam anti-inflammatory properties and its use for inflammatory conditions. Acute inflammatory activity has been studied using carrageen induced hind paw method in albino rats whereas Chronic anti inflammatory activity of karantthai rasayanam has been studied using cotton pellet granuloma method in albino rats. The result reveals that has significant acute anti inflammatory effect and moderate chronic anti inflammatory effect.

**KEYWORDS:** Karantthai , anti inflammatory, skin disease, Siddha Medicine.

**INTRODUCTION**

Inflammation is a process by which the body's white blood cells and substances they produce protect us from infection with foreign organisms, such as bacteria and viruses.<sup>[1]</sup> Inflammatory skin diseases are the most common problem in dermatology. They come in many forms, from occasional rashes accompanied by skin itching and redness, to chronic conditions such as dermatitis (eczema), rosacea, seborrheic dermatitis and psoriasis. Skin inflammation can be characterized as acute or chronic. Acute inflammation can result from exposure to UV radiation (UVR), ionizing radiation, allergens, or to contact with chemical irritants (soaps, hair dyes, etc.). This type of inflammation is typically resolved within 1 to 2 weeks with little accompanying tissue destruction. In contrast, chronic inflammation results from a sustained immune cell mediated inflammatory response within the skin itself. This inflammation is long lasting and can cause significant and serious tissue destruction.<sup>[2]</sup>

**Acute inflammation**

Acute inflammation is the early stage of inflammation. The most immediate signs of acute inflammation are:

- Pain
- Heat
- Redness
- Swelling
- Loss of function

These symptoms are due to the increased blood flow and increased permeability of the vasculature which are

bringing the neutrophils to the affected site as rapidly as possible. This protects the injured areas from further harm while the body goes into overdrive to fend off bacteria, viruses, pathogens, damaged cells, or other irritants. It not only kills off the invaders, but damaged tissue as well, until your body wins the battle. Without inflammation, wounds and infections would never heal.<sup>[3]</sup>

**Chronic Inflammation**

If the condition causing acute inflammation is not resolved, the inflammation may pass to a longer term chronic phase. Also, some pathology by their nature tends to directly provoke chronic rather than acute inflammation. Many of the features of acute inflammation continue as the inflammation becomes chronic, including increased blood flow and increased capillary permeability. Accumulation of white blood cells also continues, but the composition of the cells changes. Neutrophils quickly enter the infected tissue and these short-lived cells predominate initially. However, soon macrophages and lymphocytes begin to be recruited. The sequence by which they bind to cell adhesion molecules and pass through the endothelium is the same as for neutrophils. Thus, the primary cells of chronic inflammation are macrophages and lymphocytes.<sup>[4]</sup>

Unlike modern allopathic drugs which are single active components that target one specific pathway, herbal medicines work in a way that depends on an orchestral approach. A plant contains a multitude of different molecules that act synergistically on targeted elements of

the complex cellular pathway.<sup>[5]</sup> Medicinal plants have been source of wide variety of biologically active compounds for many centuries and used extensively as crude material or as pure compounds for treating various disease conditions.<sup>[6]</sup> The use of herbal medicines becoming popular due to toxicity and side-effects of allopathic medicines. Medicinal plants play an important role in the development of potent therapeutic agents. There are over 1.5 million practitioners of traditional medicinal system using medicinal plants in preventive, promotional and curative applications.<sup>[7]</sup> India with its biggest repository of medicinal plants in the world may maintain an important position in the production of raw materials either directly for crude drugs or as the bioactive compounds in the formulation of pharmaceuticals and cosmetics etc.<sup>[8]</sup>

## MATERIALS AND METHODS

Karanthai rasayanam<sup>[9]</sup> was prepared as per the methods mentioned in siddha literature. Acute anti inflammatory effect and chronic anti inflammatory effect was studied in Pharmacology department of Government Siddha Medical college, Palayamkottai, Tirunelveli.

### Acute anti inflammatory effect

#### Drug Preparation

2 gms of Karanthai Rasayanam was suspended in 10ml of distilled water with gum acacia as suspending agent.

### Carrageenin induced Hind Paw Method

Six healthy albino rats weighing 80-100 gm were selected. The volume of each hind paw was measured by using the mercury – plethysmograph.

After the measurement of hind paw of all the rats, they were divided into three groups each containing two rats.

First group was kept as control by giving distilled water 2ml/100gm of body weight. The second group was given Ibuprofen 20/mg/100gm body weight and kept as standard. Third group was given test drug Karanthai Rasayanam 200mg/100gm body weight.

The drugs were administered orally. One hour after the drug administration, 0.1ml 1%(w/v) of carrageenin suspension in water was injected in the plantar surface of Hind paw of all rats.

## RESULTS AND OBSERVATIONS

### CHRONIC ANTI INFLAMMATORY EFFECT OF KARANTHAI RASAYANAM

#### Inference

Group	Drug	Dose/100gm of body weight	Pellet weight of the granuloma of drugs (mg)	% Inflammation	% Inhibition
Control	Water	2ml	240	100	-
Standard	Ibuprofen	20mg	85	35.4	64.6
Test Drug	Karanthai Rasayanam	200mg	164	68.3	31.7

The test drug **Karanthai Rasayanam** has moderate chronic anti-inflammatory effect when compared with the standard drug.

Three hour after carrageenin injection the hind paw volume was measured once again. From the differences in the initial and final hind paw volume, the degree of the inflammation was calculated by taking the volume in the untreated control group as 100%.

The percentage of inflammation of the other group was calculated.

### Chronic anti inflammatory study

#### Drug preparation

1 gm of Karanthai Rasayanam was suspended in 10ml of distilled water with gum acacia as suspending agent.

### Cotton pellet Granuloma method

#### Procedure

Six healthy albino rats weighing 80-100gm were selected and divided into 3 groups each containing two rats.

In this procedure the drugs were given daily for 7 days. Before giving the drug, cotton pellets each weighing 10mg were prepared and sterilized in an autoclave for about one hour under 15 Pounds atmospheric pressure.

On the day of experiment, each rat was anaesthetized with ether to implant 10mg of sterilized cotton pellet subcutaneously in the lower abdomen two on each side after making suitable incision and sutured carefully.

First group was kept as control group by giving distilled water of 2ml/100gm of body weight. To the second group, the standard drug Ibuprofen in a dose of 20mg/100gm of body weight was given.

The third group of animals was given tested drug Karanthai Rasayanam in a dose of 200mg/100gm of body weight.

On the 8<sup>th</sup> day of the experiment, all the rats were sacrificed and cotton pellets found to be surrounded by granulation tissue were removed and dried in hot air oven at 55°C to 60°C.

**ACUTE ANTI INFLAMMATORY EFFECT OF KARANTHAI RASAYANAM**

Group	Drug	Dose/ 100gm of body weight	Initial Value	Final Value	Mean Difference	% Inflam-mation	% Inhibition
Control	Water	2ml	0.8	1.5	0.7	100	-
Standard	Ibuprofen	20mg	0.7	0.95	0.25	35.7	64.3
Test drug	Karantjai Rasayanam	20mg	0.45	0.75	0.30	35.2	64.8

**Inference**

The test drug Karantjai Rasayanam has significant acute anti-inflammatory effect when compared with the standard drug.

**CONCLUSION**

From the results it is inferred that the study drug Karantjai rasayanam reduces 64.8% of acute inflammation and the standard drug Ibuprofen reduces 64.3% of acute inflammation. In chronic anti-inflammatory study, the study drug karantjai rasayanam reduces 31.7% of chronic inflammation and the standard drug Ibuprofen reduces 64.6% of chronic inflammation. This clearly shows that the study drug Karantjai rasayanam is effective in acute inflammation compared to chronic inflammation. This anti-inflammatory effect may be due to various phyto constituents present in individual ingredients of Karantjai rasayanam.

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