

ANALGESIC ACTIVITY OF NARKARANTHAI LEGIUM- PRE CLINICAL STUDY IN SWISS ALBINO RATS

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ABSTRACT

Siddha system is an ancient system of Tamilnadu. It has practiced from 5000 years ago. Psoriasis named as kalanjagapadai quoted in siddha textbook. It is a long lasting auto immune disease characterized by patches of abnormal skin. These skin patches are typically red, dry, itchy, and silver coloured scales. Psoriasis varies in severity from small, localized, patches to complete body coverage. In severe cases, the plaques will grow and merge into one another, covering large areas. Symptoms of psoriasis are itchy, painful skin that can crack or bleed. Small areas of bleeding where the involved skin is scratched. Pain is one of the symptoms of psoriasis. Prevalence of psoriasis in India ranges

from 0.44 to 2.8%. Narkarantjai Legium is a poly herbo-mineral siddha medicine. This medicine is quoted in siddha book Bramamuni karukkadai choothiram 380 for the treatment of psoriasis. In this pre-clinical study, the author has aimed to evaluate the analgesic activity of Narkarantjai legium compared with the standard drug pentazocine in Swiss albino rats by Eddy's hot plate method. The results suggest that Narkarantjai legium (NKL) have an analgesic activity.

KEYWORDS: Siddha medicine, Narkarantjai legium, Analgesic activity, Swiss albino rats, Pre- clinical study, Psoriasis.

INTRODUCTION

To evaluate the analgesic activity of Narkaranthai legiyam by using hot plate analgesiometer. Healthy Swiss albino rats of either sex weighing 25-30gm were used in this study. All the animals were obtained from Animal house of the KMCH College of Pharmacy, Coimbatore. The animals were housed comfortably in a group of six in a single clean plastic cage with a metal frame lid on its top. They were housed under standard environmental conditions of temperature ($24\pm 1^\circ\text{C}$) and relative humidity of 30-70%. A 12:12 h light dark cycle was followed. All animals had free access to water and standard pelletized laboratory animal diet ad libitum. All the experimental procedures and protocols used in this study were reviewed and approved via the *Approval No KMCRT/MD(S)/01/2016-17* by the IAEC of KMCH College of Pharmacy, Coimbatore.

MATERIALS AND METHODS

The drugs were purchased from the local market in Thirunelveli Town, and authenticated by Department of pharmacology, Government Siddha Medical College, Palayamkottai, Tamilnadu, India. The drugs were purified and the medicine was prepared as per the methodology in the Siddha text Brahma muni karukadai soothiram 380. The drugs used to prepare Narkaranthai Legium^[1] are,

S. No.	Botanical name	Tamil name	Family
1	<i>Sphaeranthus indicus</i>	Kottai karanthai	Astraceae
2	<i>Nigella sativa</i>	Karunjeeragam	Ranunculaceae
3	<i>Terminalia chebula</i>	Kadukkai	Combretaceae
4	<i>Terminalia bellirica</i>	Thandrikai	Combretaceae
5	<i>Acorus calamus</i>	Vasambu	Acoraceae
6	<i>Piper longum</i>	Thippili	Piperaceae
7	<i>Piper nigrum</i>	Milagu	Piperaceae
8	<i>Sassuria lappa</i>	Koshtam	Asteraceae
9	<i>Zingiber officinale</i>	Chukku	Zingiberaceae
10	<i>Clerodendrum serratum</i>	Siruthekku	Verbenaceae
11	<i>Psoralea corylifolia</i>	Karbokarisi	Fabaceae
12	<i>Plumbago zeylanica</i>	Chithramoolam	Plumbaginaceae
13	<i>Celastrus paniculatus</i>	Valuzhuvai arisi	Celastraceae
S.no	Minerals	Tamil name	English name
14	<i>Sodium chloride impura</i>	Indhuppu	Rock salt
15	<i>Hydragyrum sub chloride</i>	Rasa karpooram/ pooram	Calomel
S.no	English name	Tamil name	
16	<i>Palm jaggery</i>	Panai vellam	
17	<i>Sugar cane</i>	Sarkarai	
18	<i>Ghee</i>	Nei	
19	<i>Honey</i>	Thaen	

Purification of raw drugs

- *Sphaeranthus indicus*- Dried in shade (*Sarugu patham*) powder form.
- *Nigella sativa*- It is fried in Golden Colour.
- *Terminalia chebula*- It is fried in Golden Colour and removes internal seed.
- *Terminalia bellirica*- It is fried in Golden Colour.
- *Acorus calamus*- It is burned and dried in shade.
- *Piper longum*- It is dried and mildly fried with heat.
- *Piper nigrum*- It is dried and mildly fried with heat.
- Indhuppu- Dissolved in kaadi (vinegar) and filtered then dried in sunlight.^[4]
- Valuzhuvai arisi- It is mildly fried and dried it.
- Koshtam- It is mildly fried and dried in shade.
- Chukku- removed the outer skin of dried ginger and coated with slaked lime and allows it for 3 hrs².
- Siruthekku- It is mildly fried and dried in shade.
- Karbokarisi- It is mildly fried and dried in shade.
- Chithramoolam- Bark of root is extract and backed with steam of milk.
- Rasa karpooram (calomel) - Take Piper betel (*kammaaru vetrilai*) and Piper nigram (Milagu) for 8.75 gms, then grained with water and formed kalkam and then mixed with water in 1.3 litre, then take 35gram calomel and covered with cloth and then dissolved in Thulayanthiram. Then heat with flame for mild heat (*Dheebakkini*) till the water in decreased in $\frac{3}{4}$ its level. Then take calomel and washed with water and dried in sunlight.^[3]

Drug and Solutions

- Pentazocine (10mg/Kg, IP)
- Normal Saline (2ml/Kg, Orally)
- Narkaranthai legiyam 6gm bid

Procedure

Eddy's hot plate method: Albino mice were placed on a heated copper plate set at $55 \pm 1^\circ\text{C}$ and the time taken for either to sit on its hind paw and blow its forepaw paw was taken as the reaction time or latency time. The test drug Narkaranthai legiyam 6gm BD was administered orally 1 hr before, and the standard drug Pentazocine (10mg/Kg, IP) was given intra

peritoneally ½ hr prior to the experiment. The cut-off period was taken at 15 sec. The latency time was recorded at 0, 60 min of administration of standard and test drug.^[4]

Dose Conversion Formula

Human dose is 6gm BD/day,

Total clinical dose (a) x conversion factor (b) 0.018 = (c) per 30 gm of mice,

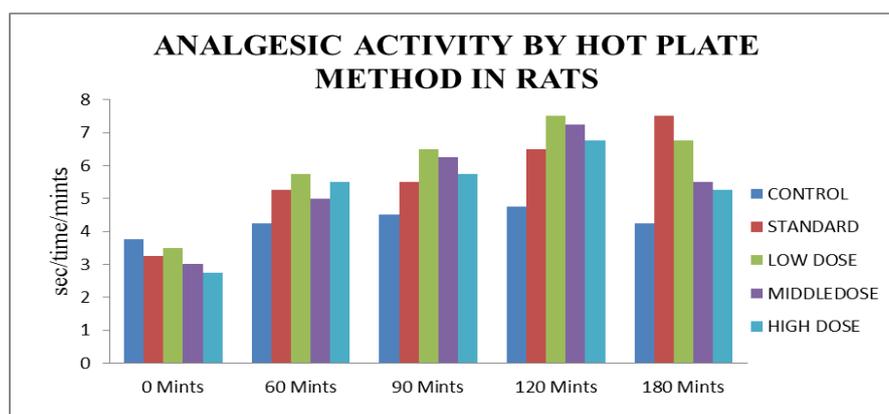
6000 mg x 2(a) x 0.018 (b) = 108 (c) /30gms of mice,

108/1000x30 = 3.24 mg.

S. no.	Groups	Dose/ kg, Weight	Dose/30gm.Weight	Volume of administration
1	Vehicle Control	--	--	0.5 ml
2	Therapeutic Dose	3.24 mg	0.648mg	0.5 ml
3	Middle Dose	16.2mg	3.24 mg	0.5 ml
4	High Dose	32.4mg	6.48mg	0.5 ml

Table 1: Analgesic activity by hot plate method.

Group	Reaction time in seconds at time (minutes) (mean ± sem)				
	0 mints	60 mints	90 mints	120 mints	180 mints
Control	3.75±0.4787	4.25±0.478714	4.5±0.6455	4.75±0.47871	4.25±0.9465
Standard	3.25±0.25	5.25±0.478714	5.5±0.6455	6.5±0.6455 ^{ns}	7.5±0.6455*
NKL+ low dose	3.5±0.6455	5.75±0.853913	6.5±0.6455	7.5±0.6455*	6.75±0.4787 ^{ns}
NKL+ middle dose	3±0.4082	5±0.408248	6.25±0.4787	7.25±0.85391*	5.5±0.6455 ^{ns}
NKL+ high dose	2.75±0.4787	5.5±0.645497	5.75±0.8539	6.75±0.47871 ^{ns}	5.25±0.4787 ^{ns}



RESULT

The results suggest that after test drug administration the reaction time in seconds and time increased gradually in all test drug treated groups compared with control group. The results of reaction time in seconds were represented in the Table: 1.

CONCLUSION

Narkaranthai legium is one of the siddha formulation in the treatment of psoriasis. Pain is one of the symptoms of psoriasis. The present study was concluded Narkaranthai legium have effective analgesic activity in low dose at 0, 60, 90 min compared with standard drug. Therefore Narkaranthai Legium having analgesic activity at low dose.

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