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SCREENING OF ANALGESIC ACTIVITY OF KODASURI VEERVAIUPPU BY TAIL IMMERSION METHOD

Ganesan A[1], Rengasundari R[2], Mudiganti Ram Krishna Rao[3], Raguram Ganesan[4]
[1]Lecturer, Government Siddha Medical College, Chenai-106.
[2]Associate Professor, Department of Nanju Noolum Maruthuva Noolum, National Institute of Siddha, Chennai-47.
[3] Professor, Department of Industrial Biotechnology, Bharath Institute of Higher Education and Research, Chennai- 600073.
[4]U.G. Scholar (MBBS), Jiamusi Medical University, Jiamusi, China.
Email: mrkrao1455@gmail.com

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Abstract

Ayurveda and Sidhha are age old traditional medicinal practices which are being focused of late as alternative to the modern form of medicine due some of their intrinsic advantages such as natural, low cost, easily affordable and with less side effects. The present study is to evaluate the analgesic effect of one Sidhha formulation, Kodasuri veeravaiuppu. The analgesic effect was studied by tail immersion method on rats. It was found that this medicine works at par when compared to a modern analgesic, Pentazocine. Thus use of this sidhha formulation is suggested as an alternative to modern medicine.

Key words: Ayurveda, Sidhha, Taditional, Kodasuri veeravaiuppu, Analgesic, Pentazocine.

Introduction

Analgesia is defined as a state of reduced awareness to pain. Analgesics are substances which decreases pain sensation by increasing pain threshold to painful stimulant. Painful reactions in the experimental animals can be produced by applying various stimulants such as radiant heat or by means of thermal, chemical or by physical methods. Common analgesics like Paracetamol, Aspirine, Pentazocine and Corticosteroids are used to relieve pain but they have certain side effects. There are many alternative medicinal forms like Sidhha and Ayurveda, which have treatments to offer. These medicines are easily available, cost effective and natural in origin. One such Sidhha medicinal formulation, Kodasuri Veeravaiuppu, is used for the treatment of Keelavayu (Arthritis) which is a painful inflammatory disease. Kodasuri Veeravaiuppu has been reported as an effective medicine for its anti-

inflammatory and anti arthritic properties (Rao *et al*, 2014 a, Rao *et al*, 2014 b)[1,2].The present study deals with the analgesic role of Kodasuri Veervaiuppu on animal model.

Materials and Methods

Experimental Animals: Swiss albino mice weighing 18-25 g of either sex were used for the study. The animals were procured and housed in the animal house maintained under standard hygienic conditions, at 20 ± 2^{o} C, humidity (60 ± 10%) with 12 hour day and night cycle, with food and water ad *libitum*.

Drugs

Pentazocine (5 mg/kg), Kodasuri veeravaippu (Test Drug) (Low dose 6.75 mg/kg, Medium dose 13 mg/kg and High dose 16.15 mg/kg). The study was carried out as per CPCSEA (Committee for the purpose of Control and Supervision of Experiments on Animals) norms the experimental protocol for the drug *'Kodasuri veeravaippu'* (AJ/IAEC/10/11) was approved by the CPCSEA/IAEC of Mohamed Sathak A.J college of pharmacy, Sholinganallur Chennai.

Procedure

In present study analgesia was assessed according to the method of Luiz *et al, 1*988[3]. Healthy mice were divided into five groups, each with five mice and were held in position in a suitable restrainer with the tail extending out. 3-4 cm area of the tail was marked and immersed in the water bath which was Thermo-statically maintained at 51°C. The withdrawal time of the tail from hot water (in seconds) was noted as the reaction time or tail flick latency. The maximum cut off time for immersion was 180 seconds to avoid the injury of the tissues of tail. Group 1 served as a positive control and received 5mg/kg of Pentazocine orally to animals and the reaction time of animals on hot water was noted at 60, 120 and 180 min after drug administration. 5 ml/kg of normal saline was administered to control animals. Test drug *'Kodasuri veeravaippu'* with 20% v/v honey 1ml solution in doses of 9.75 mg/kg, 13 mg/kg and 16.15 mg/kg were given orally by intubation. The initial reading was taken immediately before administration of test and standard drugs and then at 60, 120 and 180 minutes after the administration.

The criterion for analgesia was post drug latency which was greater than two times the pre-drug average latency as reported by Janssen *et al,* 1963 [4]. Tail flick latency difference (TFLD) or mean increase in latency after drug administration was used to indicate the analgesia produced by test and standard drugs.

Statistical Analysis:

Values for analgesic activity were expressed as mean increase in latency after drug administration ±SEM" in terms of seconds. The significance of difference between means was determined by student's t-test values of $p<0.05$ were considered significant and $p<0.01$ as highly significant.

Results and Discussion

'Kodasuri veeravaippu' exhibited potent analgesic activity at the dose levels of each test groups. It is worth noting that this test drug showed significant analgesic activity at low dose of 9.75 mg/kg even in the first hour of the test. The duration as well as the intensity of analgesia induced by *'Kodasuri veeravaippu'* was dose dependent. (Table 1, Figure 1)

It was observed that the standard drug, Pentazocine at a dose of 5mg/kg cause tail flick latency at 6, 8 and 9 sec at 60, 120 and 180 min of administration, respectively. Thus this drug has maximum effect at 60 min of administration, after which its analgesic effect slowly decreased. The latency period of animals treated with Kodasuri Veeravaiuppu at a dose of 9.75 mg/kg (Lower dose) was observed at 5 sec. at 60 min. which was better as compared to 6 sec. for Pentazocine treatment. But as the time passed the latency was 8 and 9 sec respectively. This was also fairly comparable with those values of Pentazocine.

At higher doses viz. 13 mg/kg and 16.15 mg/kg, the observed latency at all the three time schedules were very well comparable with those of Pentazocine.

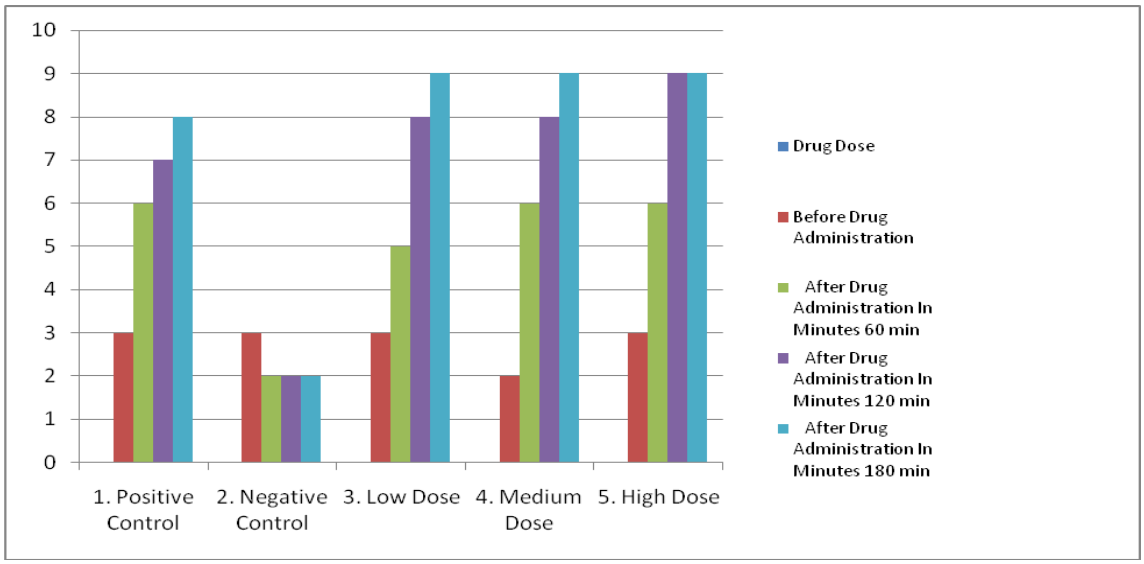
The results clearly indicate that Kodasuri veeravaippu is as potent analgesic when compared with Pentazocine. It is imperative that there is an urgent need to establish scientifically the efficacy of age old systems of medicines like Sidhha and Ayurveda and other forms of alternative and contemporary medicinal systems. This becomes all the more pertinent due to their cost effectiveness, easy affordability and minimal side effects. If proven valid at pharmacologically, pharmaco-kinetically and toxicologically safe, these systems of medicine can be the real answer to existing problems faced by modern medicine in the form of high costs, many side effects and even more alarming, the drug resistance issue. There are some reports in this direction and more should follo[5-28].

The present work clearly indicates the analgesic efficacy of Kodasuri Veeravaiuppu when compared with the standard analgesic Pentazocine. It is strongly believed that more work in this direction is warranted.

Table 1. Indicating the Analgesic activity of Kodasuri veera vaiuppu on Tail Immersion Latency.

Sl. No	Drug Dose	Before Drug Administration	After Drug Administration In Minutes		
			60 min	120 min	180 min
1. Positive Control	Pentazocine 5mg/kg. p.o	3	6	7	8
2. Negative Control	Normal saline 5 ml/ kg mice. P.o	3	2	2	2
3. Low Dose	9.75mg/kg of *Kodasuri veera vaippu* with honey. P.o	3	5	8	9
4. Medium Dose	13mg/kg of *Kodasuri veera vaippu* with honey. P.o	2	6	8	9
5. High Dose	16.15mg/kg of *Kodasuri veera vaippu* with honey. P.o	3	6	9	9

Figure 1. Analgesic activity of *Kodasuri veeravaippu*- Tail flick latency differences.



Conclusion

The present work clearly indicates the analgesic efficacy of Kodasuri Veera vaiuppu when compared with the standard analgesic Pentazocine. Thus kodasuri veera vaiuppu could be used as an analgesic.

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Corresponding Author

Dr. Mudiganti Ram Krishna Rao,

Email: *mrkrao1455@gmail.com*