



## Review Article

### **EFFECT OF ANALGESIC IN SIDDHA MEDICINE: A SYSTEMATIC REVIEW**

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#### **ABSTRACT**

The origin or ‘Siddha’ medicine was originated in Tamil Nadu about 5000 years ago. This is the old and ancient traditional medicinal system when compared to all other kind of medication. This systematic review is to assess the efficiency of siddha medicine in the treatment of analgesics. A literature review was performed using med line, pub med, science direct, Cochrane, using key words siddha medicine and analgesic. Of a total 707 appeared from various sources; 524 articles were screened and 6 were related to the research question. This review was reported according to the PRISMA guidelines. In the available literature, Siddha medicine is used as effective analgesics in animal trail.

**Keywords:** Siddha medicine, analgesics, traditional medicine, animals, ancient medicine, pain level.

#### **INTRODUCTION**

India’s one of the ancient medicines is Siddha, mainly in south India it is considered as mother of medicine. Siddha medicine is an ancient medicine and its origin from Tamil tradition, which is more prevalent in Tamil Nadu. It is found to be foremost of all other tradition medicine in the world, its origin in 10,000 to 4000 BC.

The word Siddha medicine comes from Tamil word means ‘one that is accomplished. Some people thought that Ayurveda is the oldest medicine but researchers found with historical evidence that Siddha is our ancient medicine<sup>1</sup>.

The major sources of Siddha medicine belong to religious groups called ‘Kayasiddhars’ and them emphasized on the “Perfection of the body” by means of yoga, alchemy, medicine. WHO is also encouraging national health care programme to implement the traditional ancient medicines which is safe, low price and also people having faith in their traditions<sup>2</sup>. The drugs prescribed by the Siddhas could be classified into three groups: thavaram (herbal product), thadhu (inorganic substances) and jangamam (animal products)<sup>3</sup>.

Nowadays Siddha has entered in the field of dentistry and so many medicines are used for various dental problems, among the various medicines for treating dental pain there are so many medicines in Siddha.

#### **Sources of Information**

Original research articles, Randomised control trail on animals, articles are emphasizing on the efficacy of herbs on analgesics were included in the study.

#### **Search strategy**

Published literatures on recent advancements in assessing the efficacy of Siddha medicine in the treatment of pain which includes original articles and research papers in databases such as Pub Med Central, Science direct and Cochrane Central Register of Controlled Trials (Central) were taken into study for review. A literature search to collect relevant data was performed using the keyword Siddha medicine and analgesics and animals. A total of 707 abstracts appeared with this combination. Of these, 6 articles were research related. For each retraction, a total of 6 articles were retrieved for review.

#### **Search engine**

Med line  
Pub Med  
Cochrane library  
Wiley online library  
Scopus  
Science direct  
Grey literature

The search yielded 712 records and full-text articles were independently assessed. Among these full articles, 6 articles were included for the review. Figure 1 shows the flow diagram of the reports that were identified, duplicates removed, screened, excluded, assessed for eligibility and included in the review.

Table 1 shows the intervention in the included studies, in all the 6 studies the plant and its preparation, and the animal which is taken for the study were discussed.

Table 2 shows the outcome and results of the study and their effectiveness in reducing pain in animals were included whether the plan is helpful in reducing or not were discussed in this review.

Figure 1 shows the flow diagram showing the number of studies identified, screened, assessed for eligibility, excluded and included in systematic review.

Table 3: On analysing Bias in each study there was a high risk were found to be in all studies for selecting the sample, reporting, and judging. And also some unclear details were found in all the experiments in blinding and outcome data and there was found to be a low risk in allocation concealment

### Studies for Review

Chafique Younos et al in 1990 reported that aqueous extract of *Morinda citrifolia* (root) was evaluated for analgesic and behavioural effects in mice. The extract did not exhibit any toxic effects but did show a significant dose-related and analgesic activity in writhing test as well as hotplate tests. This effect was confirmed by the antagonistic action of naloxone.

T. Punjanon et al in 2003 reported that alcoholic extract from the fruits of *Morinda citrifolia* was evaluated for analgesic effect in mice using the acetic acid-induced writhing test. The inhibitory effect of the 4 g kg<sup>-1</sup> dose of extract was similar to the effect

produced by morphine in a dose of 1.5 mg kg<sup>-1</sup>. The writhing test was statistically significant (p < 0.001).

James B. Perianayagam et al in 2004 reported that analgesic activity of ethanol (EEO) and aqueous (AEO) extracts of *Emblica officinalis* fruit. Both EEO and AEO also elicited pronounced inhibitory effect on acetic acid-induced writhing response in mice.

Alka Sawarkar et al in 2009 reported that mean reaction time was observed before and after administration of extract of *Hibiscus rosa sinensis* at the different concentrations with 100, 200 mg/kg body wt. and Analgin 10 mg/kg body as a positive control he observed there was a 1% level of significance where (p < 0.01).

V. I. Borikar et al in 2009 reported that aqueous extract of *Bauhinia racemosa* Lam stem bark at 200 mg/kg body weight produced significant analgesic activity in rats using 'tail immersion method'.

Arif-ullah Khan et al in 2010 reported that *Terminalia bellerica* extract at a dose of 50 - 100 mg/kg has reduced the numbers of acetic acid-mediated writhes in mice. At the same time in this study the positive control diclofenac at the dose of 20 mg/kg may decrease the number of acetic acid-mediated writhes to 10 ± 1.0 (p < 0.001, n = 5)

In India and China they used their traditional Plants for medicinal purpose for thousands of years. These medicinal plants and their extracts are used for various medical purposes like analgesic, anti-inflammatory, anti fungal, anti viral, anti bacterial, anti septic used by various sectors of Siddha, Ayurveda, Unani. Scientifically, there are few pharmacological properties, these properties has support their traditional use. Throughout the world there are more plants that are used to treat pain, infection and other diseases. Among those plants there are new therapeutic agents widely used for analgesic purpose for the better alternate for Allopathic and for the purpose of safety<sup>10</sup>.

Table 1: Intervention of the study

Author	Plant	Preparation	Number (case/control)	Experimental animal
Younos et al (1990) <sup>4</sup>	<i>Morinda citrifolia</i>	50 g of dried, powdered roots were decocted during 15 mm and macerated for 4 h in 300 ml hot distilled water. After filtration, the aqueous filtrate was concentrated under reduced pressure and then lyophilised; (2.9 mg of lyophilisate corresponded to 30 mg of powdered)	aqueous extract of <i>Morinda citrifolia</i> at a dose of 100, 200,400,800, and 1600 mg/kg i. p. Control animals received 0.9% NaCl solution i.p. 30 mm later.	Male and female Swiss mice weighing 20–22 g (5 weeks old) were used (The numbers of Contortions and stretching were then counted over a 30 mm period. Hotplate test: The apparatus comprised)
Punjanon et al (2003) <sup>5</sup>	<i>Morinda citrifolia</i>	50 g of dried powdered fruits were macerated with 500 ml of 95% methanol for 2 days. The alcoholic extract was filtered and evaporated to dryness in an oven set at 40°C.	Control animals - normal saline (10 ml kg-1, i.p.) The alcoholic extract of <i>Morinda citrifolia</i> (4 g). was injected	Male Swiss mice weighing 30-35 g were used
Perianayagam et al (2004) <sup>6</sup>	fruits of <i>Emblica officinalis</i>	The powdered fruits were extracted with 95% ethanol in soxhlet apparatus.	The ethanol (EEO) and aqueous (AEO) at the dose of 500 mg/kg, aspirin (400 mg/kg i.p.) and normal saline (5 ml/kg, i.p.) were intraperitoneally Injected into mice 60 min before acetic acid. and	Swiss Albino mice of either sex weighing 20–35 g were used. (Number of writhing movements was counted for 15 min.)

Sawarkar et al (2009) <sup>7</sup>	<i>Hibiscus rosa sinensis</i>	Leaves were dried at room temperature and then powdered. Aqueous and alcoholic extract were prepared use of alkalis in removing acidic constituents from extracts	T1-negative control (0.5 ml-distilled water orally) T2- positive control (Analgin -10 mg/kg was administered) T3 and T4 -(Analgin -10 mg/kg was administered) T5 and T6 - ( Alcoholic extract of <i>Hibiscus rosa sinensis</i> was given at 100, 200 mg/kg respectively orally)	36 healthy wistar albino rats weighing between 150-200 g
Borikar et al (2009) <sup>8</sup>	Stem barks of <i>Bauhinia racemosa</i>	Stem barks of <i>Bauhinia racemosa</i> Lam. were collected and were dried at room temperature, It was powdered and sieved through muslin cloth.	T1 served as control (0.5 ml of normal saline) T2 analgin (10 mg/kg p wt) T3 and T4 (100 and 200 mg of aeqous) T4 and T5 (100 and 200 mg alcoholic extract)	Thirty six healthy Wistar rats weighing around 150-200 g were selected
Khan et al (2010) <sup>9</sup>	<i>Terminalia bellerica Roxb.</i>	About 432 g of fruits were crushed, then soaked in 70% aqueous-methanol, filtered and concentrated with rotary evaporator to obtain crude extract.	After 30 min of plant extract administration, mice received 0.7% acetic acid solution (0.1 ml/10 g [IP]). Control animals received - (Normal saline 10 ml/kg, i.p.).	Male adult mice were used (The number of writhes produced in these animals was counted for 20 min.)

Table 2: Outcome and results of the study included

Author	Outcome	Results
Younos et al (1990) <sup>4</sup>	Hot plate test: <i>Morinda citrifolia</i> extracts increased in a dose-dependent fashion the reaction time of mice;	<i>Morinda citrifolia</i> L. appears to have analgesic effects at 800 mg/kg.
Punjanon et al (2003) <sup>5</sup>	The analgesic effect of the 4 g extract was similar to the effect produced by morphine at a dose of 1.5 mg. Thus shows statistically significant (p<0.001)	The alcoholic extract of the fruits and the aqueous extract of roots of <i>Morinda citrifolia</i> appear to have analgesic effects.
Perianayagam et al (2004) <sup>6</sup>	Extracts (EEO and AEO), when administered intraperitoneal at the dose of 500 mg/kg caused an inhibition on writhing response induced by acetic acid. The percentage inhibition of writhing produced by the extracts were 41.8 and 33.0%, respectively.	Extracts of <i>Emblca officinalis</i> fruits possessed analgesic activity.
Sawarkar et al (2009) <sup>7</sup>	The mean reaction time was observed before and after administration of extract of <i>Hibiscus rosa sinensis</i> at the different concentrations used of 100, 200 mg/kg body wt. and Analgin 10 mg/kg b. wt. The data obtained was analyzed statistically to know the level of significance	100, 200 mg/kg body wt. and Analgin 10 mg/kg body wt differ significantly when compared with control and the difference was observed significant at 1% level of Significance (p < 0.01).
Borikar et al (2009) <sup>8</sup>	Alcoholic extract of <i>Bauhinia racemosa</i> showed significant difference as compared to control at 100 mg/kg and 200 mg/kg body weight (T5 and T6) respectively. (P < 0.01)	Aqueous extract of <i>Bauhinia racemosa</i> Lam stem bark at 200 mg/kg body weight produced significant analgesic activity
Khan et al (2010) <sup>9</sup>	At the doses of 50 and 100 mg/kg, the extract reduced the number of writhes to 40 ± 3.0 (P < 0.01, n = 5) and 18 ± 2.0 (P < 0.001, n = 5) respectively.	<i>Terminalia bellerica</i> Roxb justifying its use in pain.

Table 3: Bias assessment for the studies

Author name, year	Random sequence generation	Allocation concealment	Blinding of outcome	Incomplete outcome data	Blinding of participants and personalle	Selective reporting	Judgemental bias
Younos (1990)	++	+	?	?	?	++	++
Punjanon (2003)	++	+	?	?	?	++	++
Perianayagam (2004)	++	+	?	?	?	++	++
Sawarkar (2009)	++	+	?	?	?	++	++
Borikar (2009)	++	+	?	?	?	++	++
Khan (2010)	++	+	?	?	?	++	++

The bias assigned as low risk (+), high risk (++), and unclear (?)

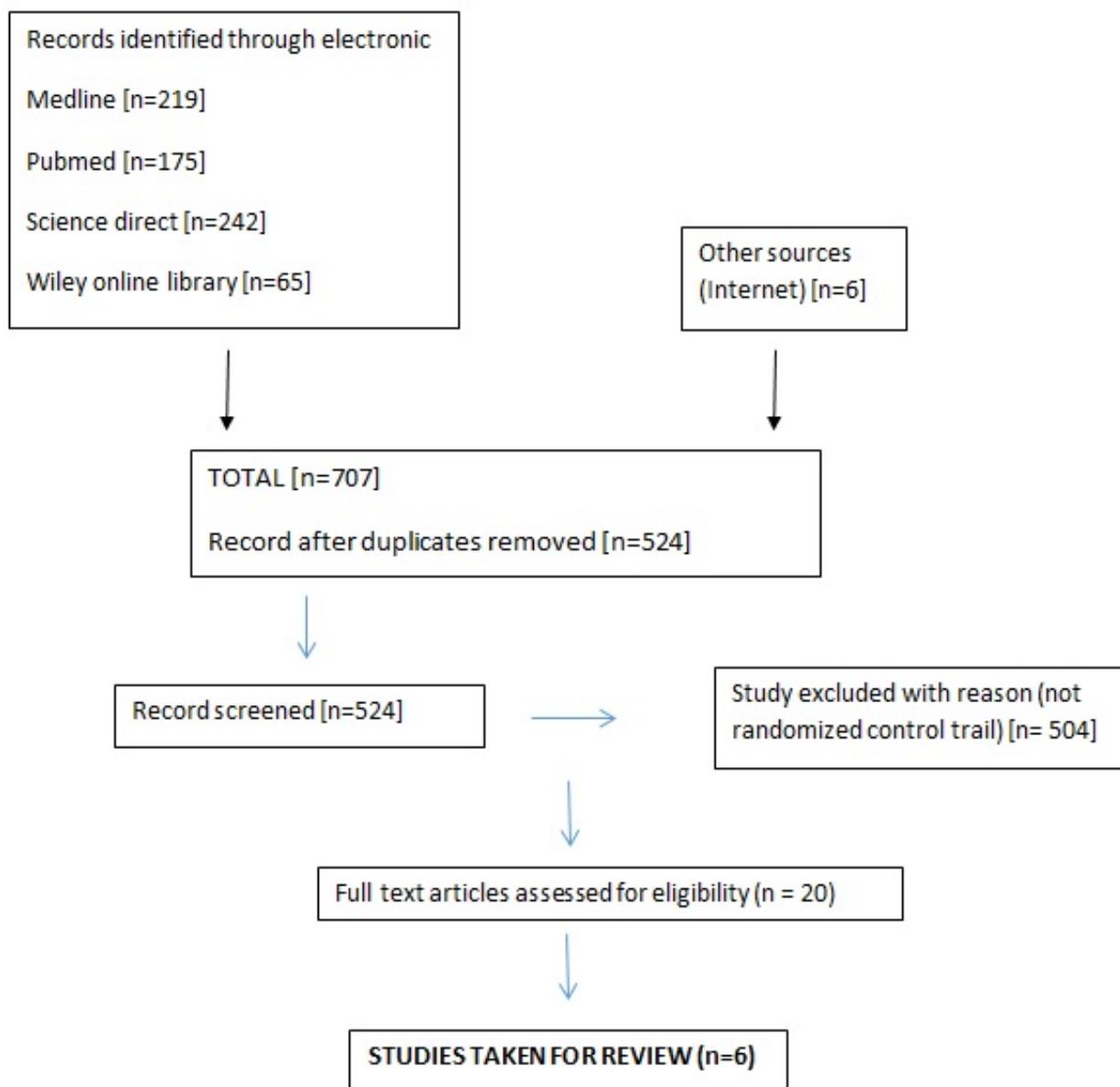


Figure 1: Flow diagram showing number of studies assessed, screened, excluded and included in Systematic Review

## CONCLUSION

Among the seven included studies from this systematic review, herbal plants extracts in the field of Siddha medicine has an effective analgesic effect in experimental animal. The limitations of this review include; from a total of 707 articles screened only 6 of the articles were based on analgesics.

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