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Anti Nociceptive Activity On Medicinal Plants: A Systematic Review

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ABSTRACT: An unpleasant sensory and emotional sensation known as pain can result from actual or potential tissue injury. Pharmaceutical research is focused on developing medications that reduce pain, which is a symptom of many disorders. The anti-nociceptive properties of plants have been reviewed in the current review. The majority of the information for this review came from electronic journals. A systematic review was utilized to gather literature from Pubmed, Google Scholar, and Science Direct. A total of 2,448 publications were published from 2000 to 2023; however, only 50 of these had data that could be collected. The evidence suggests that these medicinal plants may be useful for therapeutic purposes and may be able to relieve pain.

KEY WORDS: Anti-nociceptive, Medicinal plants, Relieve pain

I. INTRODUCTION:

Medicinal plants have been utilized to cure numerous diseases since ancient times, and they have a wide range of therapeutic applications. These herbs are utilized as a sort of pain relief therapy [(1)]. The WHO considers the 25% of pharmaceuticals that are currently given as basic and essential and that are produced around the world[(2)].Pain sensation possesses risk to tissue damage and central nociceptive pathways. Signals from nerves in the spinal cord guide the CNS, reaching the thalamus and relaying nuclei at various brain stem sites[(3)]. Opioid analgesics relieve pain, but some are metabolized and may cause side effects like CNS, CVS, GIT, and hallucinations[(3)].

II. METHODOLOGY:

Journal issues from 2000 to 2023 were searched for electronically using Science Direct, PubMed, and Google Scholar. Regardless of language, all full-text, open-access scientific publications were taken into account. The scientific names of 50 medicinal plants with anti-nociceptive properties were the search terms used in the query. Publications demonstrating the preclinical proof of plants' analgesic potential have to be included in the selection criteria. The portion being used as well as the type of evaluation being done are antinociceptive plants.

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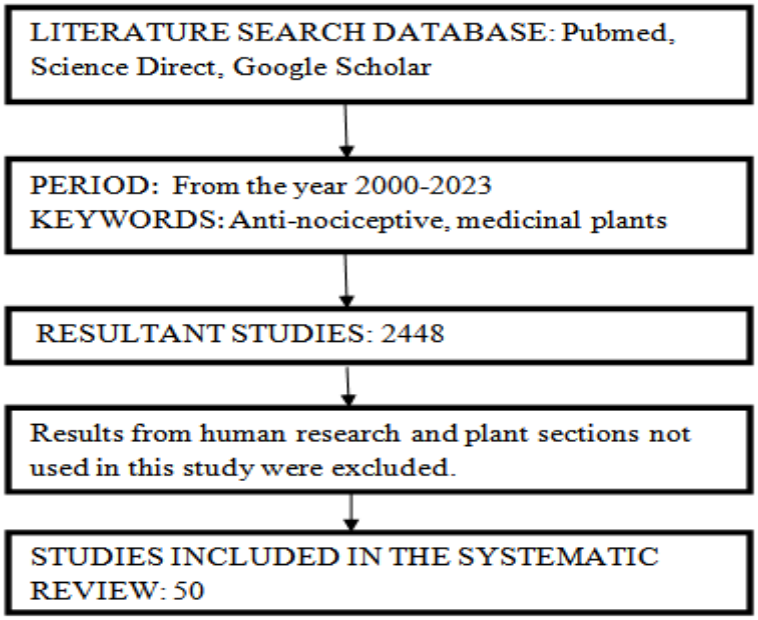

Figure No 1: Literature Search Database

III. RESULT:

There are a total of 50 reports on plants that mention these behaviors. And the outcomes are resulted in table.

TABULATION: Plants having anti-nociceptive activity

S. NO	PLANTS NAME	FAMILY	PARTS USED	METHODS USED	REFERENCE NO.
01	Salvia officinalis	Lamiaceae	Leaf	Hot plate, Formalin induced paw licking in rats.	04
02	Mentha microphylla	Lamiaceae	Leaves	Acetic acid induced-Writhing and tail flick	05
03	Alpinia zerumbet	Zingiberaceae	Aerial parts	Hotplate, formalin and writhing test	06
04	Equisetum arvense	Equisetaceae	Stem	Hotplate, formalin and writhing test	07
05	Balbisia calysina	Vivianiaceae	Aerial parts	Hotplate, and formalin test	08
06	Artemisia biennis	Asteraceae	Aerial	Formalin induced paw licking, acetic acid induced writhing, tail flick	09
07	Croton cajucara	Euphorbiaceae	Leaves	Acetic acid induced-Writhing, hotplate, and formalin	10
08	Kalopanax pictus	Araliaceae	Stem bark	Acetic acid induced-Writhing and hot plate	11
09	Neorautanenia mitis	Papilonaceae	Root	Hot plate and formalin	12
10	Punica granatum	Lythraceae	Fruit peel	Writhing, formalin, tail immersion, hotplate.	13

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11	Helicteres isora	Malvaceae	Root	Writhing test	14
12	Syzygium jambos	Myrtaceae	Aerial parts	Hotplate and formalin	15
13	Pinus densiflora	Pinaceae	Pollen	Formalin and hot plate test	16
14	Acronychia pedunculata	Rutaceae	Leaves	Carrageenan induced hind paw.	17
15	Nidularium procerum	Bromiliaceae	Leaves, roots, rhizome.	Acetic acid induced-Writhing test.	18
16	Ipomoea pes caprae	Convolvulaceae	Aerial parts	Acetic acid induced, formalin test.	19
17	Byrsonima intermedia	Malpighiaceae	Leaves	Formalin and hotplate.	20
18	Melastoma malabathricum	Melastomataceae	Stem bark, leaves	Hotplate, Acetic acid induced-Writhing	21
19	Marrubium vulgare	Lamiaceae	Aerial parts	Formalin, hotplate, capsaicin induced pain.	22
20	Plukenetia conophora	Euphorbiaceae	Seed oil	Hotplate, acetic acid and formalin induced paw licking tests.	23
21	Achyranthes aspera	Amaranthaceae	Leaves	Acetic acid-Writhing, hotplate, tail flick	24
22	Polygonatum verticillatum	Asparagaceae	Aerial parts	Formalin, hotplate.	25
23	Ricinus communis	Euphorbiaceae	Seeds	Writhing, tail flick.	03
24	Russelia equisetiformis	Plantaginaceae	Whole plants	Acetic acid induced-Writhing, tail flick	26
25	Xylopia parviflora	Annonaceae	Bark	Hotplate, formalin, Acetic acid induced-writhing.	27
26	Incarvillea delavayi	Bignoniaceae	Aerial parts	Acetic acid induced-Writhing test.	28
27	Brugmansia suaveolens	Solanaceae	Flower	Formalin, Writhing, hotplate, tail flick	29
28	Piper solmsianum	Piperaceae	Leaves	Acetic acid induced-Writhing, capsaicin, glutamate induced nociception	30
29	Abelmoschus esculentus	Malvaceae	Fruits	Formalin, writhing	31
30	Teucrium polium	Lamiaceae	Aerial parts	Writhing test	32
31	Phyllanthus amarus	Euphorbiaceae	Leaves, stem, roots	Acetic acid induced writhing, formalin and capsaicin induced test.	33
32	Euphorbia thymifolia L	Euphorbiaceae	Whole plant	Writhing test.	34
33	Costus speciosus	Costaceae	Rhizome	Tail flick test.	35
34	Romarinus officinalis	Lamiaceae	Leaves	Writhing, hot plate test.	36
35	Chlorophytum alismifolium	Liliaceae	Tubers	Writhing test.	37
36	Curcuma zedoaria	Zingiberaceae	Rhizome	Writhing and hot plate.	02
37	Allanblackia monticola	Guttiferae	Stem bark	Formalin, Hotplate test.	38

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38	Senna singueana	Fabaceae	Leaves	Writhing and hotplate.	39
39	Trichosanthes dioica	Cucurbitacea e	Root	Writhing, Tail flick.	40
40	Terminalia coriacea	Combretacea e	Leaves	Writhing, formalin	41
41	Melicope ptelefolia	Rutaceae	Root	Writhing, tail immersion.	42
42	Caralluma arabica	Apocynaceae	Aerial parts	Hotplate, tail flick	43
43	Lythrum salicaria	Lythraceae	Flower and stem	P-benzoquinone induced abdominal constriction test, Carrageenan induced hindpaw edema model.	44
44	Piper sarmentosum	Piperaceae	Leaves	Hotplate, Carrageenan induced paw edema test	45
45	Smilax china L	Smilaceae	Tubers	Hot plate, albumin induced rat paw edema.	46
46	Connium maculatum	Apiaceae	Aerial parts	Tail flick, Carrageenan induced paw edema test in rats.	47
47	Clitoria ternatea	Fabaceae	Flower	Carrageenan paw edema test, hot plate	48
48	Corchorus capsularis	Malvaceae	Leaves	Writhing, hotplate and formalin test, carrageenan induced paw edema test.	49
49	Coriandrum sativum	Apiaceae	Seeds	Carrageenan test, writhing and formalin test.	50
50	Clerodendrum inerme	Verbenaceae	Aerial parts	Carrageenan induced paw edema, Writhing test.	51

IV. DISCUSSION:

The bulk of people in poor nations receive their health treatment mostly from traditional botanicals. The current publication provides a summary of the research on plant usage as a nociceptive therapy. According to one source, more than 30 distinct plant species, the majority of which are members of various plant families, are used to treat pain. The bulk of the plants were also employed as anti-inflammatory, anti-rheumatic, and other types of therapies in addition to nociception. They are mostly used to assess nociceptive pain using the hotplate , formalin, and acetic acid-induced writhing (75%), Carrageenan and others (10%), Tail flick and Tail immersion (15%) methods.

V. CONCLUSION:

We may infer from this systematic research that medicinal plants give a fantastic potential to uncover active compounds against anti-nociceptive action. These medicinal herbs are also important in a variety of disorders.

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