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# Neurotherapeutic Prospects of Sesbania grandiflora: A Novel Phyto-Based Approach for Migraine Management''

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## ABSTRACT:

Sesbania grandiflora, or the "vegetable hummingbird" or "Agati," is a medicinal plant used widely in traditional Asian systems of medicine. All parts of the plant, namely leaves, flowers, and bark, have been ascribed with curative values for several conditions. Of its many uses, Sesbania grandiflora has been applied to the management of headache (migraine), which is a common and often disabling ailment. The pharmacological activities of the plant including its anti-inflammatory, analgesic, and neuroprotective effects could be attributed to its effectiveness in the relief of headache. The present study intends to investigate the possible mechanisms by which Sesbania grandiflora provides its therapeutic effects on headache, particularly through its chemical compounds and how they act upon the pathways of pain modulation. Preliminary research indicates that bioactive compounds found in Sesbania grandiflora like flavonoids, alkaloids, and saponins might be implicated in modulating interaction with the central nervous system for inducing analgesia and anti-inflammatory effects. Additional clinical trials need to be carried out to validate these statements, identify optimum doses, and verify the efficacy and safety of Sesbania grandiflora as a headache remedy. This paper highlights the importance of integrating conventional wisdom with modern scientific studies to provide holistic and evidence-based therapies for headache disorders.

KEYWORDS: Sesbania Grandiflora, Phytochemical, Headache (Migraine) Treatment, Brain, Nasal Drug Delivery

# **1. INTRODUCTION:**

Sesbania grandiflora, otherwisef known as 'Hummingbird Vegetable' or 'Agati,' is rich in herbal attributes.[1] Fabaceae is its family of classification and, along with being cultivative in south-east Asia, Africa and India, is also found in tropical and subtropical regions.[2] For the vast majority of human history, diverse systems of traditional medicine have incorporated it, appreciating not just its dietary value but its high therapeutic value in numerous respected ailments. A headache is defined as pain in any part of the head, scalp and the neck. [3] Headaches are classified in terms of severity, duration, intensity, culmination and pain sensation. Headaches stem from a variety of influences such as stress, medical illness, dehydration, or other unknown medical conditions.[4] Possible accompanying symptoms include but are not limited to nausea, vomiting, light and sound sensitivity, vision distortion, and depend on the type of pain. The tension headache class represents the highest ratio in occurrence. Headaches of this class are akin to a tight band encircling the skull and synonymous with mild to moderate intensity pain. This is most commonly caused by stress, anxiety, bad posture, accumulated muscle strain, or even tenderness on the scalp, neck, or shoulders.[5] Another type which is also quite common are migraine headaches which usually present with intense, throbbing pain, usually located on one side of the head. They may additionally present with nausea, vomiting, and increased sensitivity to light and sound.[6] Some foods, stress, or changes in hormones may trigger such headaches. Furthermore, there are cluster headaches which happen in rounds. These headaches are severely painful and are often centered around one eye. They will frequently accompany other signs, for example, tearing or a blocked nose.[7] It is a remarkable plant since its leaves, flowers, and seeds are edible, and each of them contains different bioactive compounds with various health benefits. One of the interests has been the use of Sesbania grandiflora for controlling migraines, especially in the context of alternative treatments for conventional migraine drugs.[8] Migraines are a quite common and frequently crippling neurological disorder that affects worldwide million of people. Painful headaches are frequent and recurrent in nature, and are associated with symptoms such as nausea, vomiting, and extreme sensitivity to light and sounds.[9] A person suffering from migraine can expect such attacks for a number of days to weeks. These attacks can drastically reduce their quality of life. While the cause of these migraine pains is still unclear, some studies have hypothesized that it could be a result of external factors.[10] The disorder is believed to be related to alterations in the brainstem, neurotransmitter imbalance, and aberrant brain activity, specifically in relation to the dilation and constriction of brain blood vessels.[11] The treatment of migraines has conventionally consisted of a blend of pharmacologic interventions, such as abortive medications (e.g., analgesics and triptans) to mitigate the pain of an attack and preventive medications (e.g., beta-blockers, anticonvulsants, or antidepressants) to decrease the frequency and severity of attacks.[12] Effective for most, the treatments are ineffective in all and most commonly result in side effects, ranging from mild to severe.[13] The side effects and disadvantages of traditional treatments

have encouraged patients to look for alternative treatments, such as traditional herbal medicine, for safer and more natural remedies. Sesbania grandiflora has been suggested as a candidate for alternative treatments, especially since it can alleviate migraine symptoms.[14] Traditionally, it has been utilized to treat many diseases, from inflammation to fever, headache, gastrointestinal, and dermal diseases. The medicinal activity of the plant has been associated with the high biodiversity of bioactive compounds in leaves, flowers, and seeds, such as flavonoids, alkaloids, saponins, and tannins.[15] These molecules are thought to be responsible for anti-inflammatory, analgesic (pain-suppressing), and neuroprotective activities, thereby making Sesbania grandiflora a potential effective natural remedy for migraine control. [16] One of the most important ways through which Sesbania grandiflora could be useful in migraine relief is its anti-inflammatory activity. Inflammation is said to be at the center of the pathophysiological mechanisms of migraines.[17] During a migraine attack, the release of inflammatory mediators such as prostaglandins and histamines causes the dilation of cerebral blood vessels, causing pain.[18] Sesbania grandiflora, especially its leaves and flowers, contains flavonoids such as compounds that have been shown to inhibit the synthesis of inflammatory mediators such as these, and thus may alleviate the severity of migraine pain.[19] The anti-inflammatory activity of Sesbania grandiflora can also lead to the reduction of frequency of migraine attacks, and the plant is thus a candidate for migraine prophylaxis. Another critical component of migraine therapy is the modulation of cerebral blood flow.[20] During a migraine attack, cerebral blood vessels constrict followed by dilation, which worsens the pain. Some of the compounds found in Sesbania grandiflora, such as saponins, are said to modulate vascular tone and cause vasodilation (dilation of blood vessels).[21] This vasodilatory effect can block the vasoconstriction in the initiation of a migraine attack, and thus the induced pain.[22] Saponins have also been found to exert neuroprotective activity, which can also treat the neurological symptoms that are normally observed with migraines, such as sensory disturbances and visual aura. Analgesic activity of Sesbania grandiflora can also treat migraine pain.[23] The plant has been traditionally used globally across cultures in the form of preparations such as herbal infusions, poultices, and extracts to treat headache. The preparations are said to act by modulating the nervous system's nociceptive pathways.[24] Alkaloids, a major group of bioactive constituents of Sesbania grandiflora, have been shown to exert their effects on pain receptors in the brain and central nervous system and possibly reduce the perception of pain and relieve migraine.[25] The synergistic anti-inflammatory, analgesic, and neuroprotective effects of these constituents place Sesbania grandiflora as a powerful natural alternative for patients who want to control migraines without the use of synthetic drugs.[26] Though Sesbania grandiflora is well documented to be employed in traditional medicinal practice for headache and the treatment of migraine, recent scientific research into its efficacy and safety in migraine treatment is in its infancy.[27] Pilot studies and clinical anecdotes indicate promising results of Sesbania grandiflora extracts in the treatment of migraine. Clinical trials involving larger patient numbers and more sophisticated methodologies are required to validate the efficacy of the herb and establish its optimal dose, route of administration, and long-term safety profile.[28] Limited animal and in vitro studies have only just begun to explore the pharmacologic actions of Sesbania grandiflora and its therapeutic potential in migraine.[29] These studies have been focused on the isolation and characterization of the individual bioactive constituents of the plant and their pharmacological effects on migraine-like syndromes in animal models. While results of such trials are promising, more human clinical trials are required to create a higher level of evidence of its effectiveness as a therapeutic agent for migraines.[30] As attention is still growing for natural alternatives to conventional migraine treatment, Sesbania grandiflora can be an important addition to the growing list of herbal drugs for the debilitating disorder. Its value as a safer, more accessible alternative for people with migraines makes its case a matter of considerable interest for further research in phytomedicine.[31].

#### 1.1 BOTANICAL AND PHYTOCHEMICAL PROFILE OF SESBANIA GRANDIFLORA:



Diagram: 1 Sesbania Grandiflora Flowers And Leaves [1,2]

#### 1.1.1 Botanical Profile: Scientific Classification:

O Kingdom: Plantae

- O Division: Angiosperms
- O Class: Eudicots
- O Order: Fabales
- O Family: Fabaceae
- O Genus: Sesbania
- O Species: S. grandiflora
- Common Names:
- O Agati
- O Butterfly Tree
- Hummingbird Tree
- West Indian Senna

Sesbania grandiflora, or Agati or Butterfly Tree, is an evergreen, quick-growing tree found in tropical and subtropical parts of Asia and Africa.[32] A member of the family Fabaceae, it grows up to 10-15 meters in height, but it can be pruned to be kept as a shrub.[33] It has a spreading crown with drooping, slender branchlets and bright green, pinnate compound leaves with 10-25 lance-shaped leaflets. The most notable feature of the tree is the large, showy flowers, which unfurl in dense clusters at the tip of the branches.[34] They are usually white, pink, or light purple with a yellow, prominent center, and look like butterflies, and they bloom during the hot season. The tree produces long, thin pods, which become brown on maturity, each filled with flat, brown seeds.[35] As a legume, Sesbania grandiflora has the significant ecological role of nitrogen fixation in the soil and enhancing soil fertility. This characteristic also renders it a useful plant for soil enrichment and erosion prevention in tropical and subtropical regions.[36] The tree grows well in warm climates and well-drained soils, but it can survive in a broad range of soils, including saline soils. Its fast growth and the property of fixing nitrogen make it a valuable species in agroforestry systems, where it is utilized to improve the soil and provide shade for crops.[37] Apart from being ecologically valuable, Sesbania grandiflora has a number of applications in human culture. Its leaves, flowers, and pods are edible and widely used in traditional cuisine, especially in Southeast Asia, where the flowers are eaten as a vegetable and the leaves are prized for their nutritional value.[38] The tree has also been used in traditional medicine, where different parts, including the leaves, flowers, and bark, are used to cure diseases like fever and liver disease. Its pale wood is also used for crafting small items as well as being used as fuelwood.[39] Sesbania grandiflora propagates easily on seed or on cuttings, and seeds occasionally are soaked overnight to improve germination.[40] Although typically pest- and disease-free, it may on occasion be subjected to leaf spot diseases, aphids, or root rot when grown in soils that are poorly drained. This beneficial tree, besides being economically important due to its environmental merits, is very much culturally and economically significant where it is planted.[41]

#### 1.1.2. Phytochemical Profile:

Sr. No.	Plant Parts	Compounds	Phytochemical	Functions And Properties	Reference
1.	Leaves, Seeds	Alkaloids	Sesbanine, Sesbaniamine	Exhibits mild analgesic, anti- inflammatory, and antidiabetic effects	42
2.	Leaves, Flowers	Flavonoids	Quercetin. Kaempferol	Antioxidant, anti-inflammatory, antimicrobial, anticancer	43
3.	Leaves, Bark	Tannins	Condensed Tannins	Astringent, antimicrobial, promotes wound healing	44
4.	Seed and Leaves	Saponins	Saponins	Antimicrobial, antifungal, cholesterol- lowering.	45
5.	Leaves and Flowers	Phenolic Compounds	Gallic acid, Caffeic acid	Antioxidant, anti-inflammatory, antimicrobial	46
6.	Leaves, Flowers	Glycosides	Flavonoid glycosides	Anti-inflammatory, antioxidant, helps with cell regeneration	47
7.	Leaves, Seeds	Terpenoids	Beta-sitosterol, Triterpenoids	Antioxidant, cholesterol-lowering, anti- inflammatory	48

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8.	Seed	Protein	Proteinase inhibitors	proteins, anticancer activity	49
9.	Leaves Seed	Carbohydrates	Polysacchandes	Source of energy, Immune-boosting properties	50
10.	Leaves, Flowers	Essential Oils	Sesbania grandiflora oil	Antioxidant. antimicrobial, anti- inflammatory	51
11.	Flowers And Seeds	Organic acids	Acetic acid, Formic acid	Antimicrobial, enhances digestion	52
12.	Seed	Fatty acids	Oleic acid, Linoleic acid	Heart-healthy, anti-inflammatory, reduces cholesterol	53
13.	Leaves, Seeds	Sterols	Beta-sitosterol	Cholesterol Howering, anti- inflammatory, anti-canter	54

Table: 1 Phytochemical Profile

# 1.1.3. Phytochemical That Are Used In The Treatment Of Headache (Migraine):

Sesbania grandiflora, which is commonly, contains a number of phytochemicals with possible therapeutic activities, some of which can help in pain relief and anti-inflammatory activity, which can be helpful in the management of headaches.[55] The major phytochemicals present in Sesbania grandiflora are

1. Alkaloids (Sesbanine) Action: Alkaloids such as sesbanine and perhaps other sesbania grandiflora compounds are considered to exert analgesic (painkilling) and anti-inflammatory activities. Such activities may assist in headache pain management, but direct evidence for their use in headache treatment is limited.[42]

2. Flavonoids (Quercetin and Kaempferol) Action: Quercetin in Sesbania grandiflora flavonoids possess antioxidant and anti-inflammatory action. Quercetin is capable of reducing inflammation and enhancing blood flow, which can potentially decrease the intensity of headaches, particularly those caused by inflammation or vascular conditions.[43]

**3. Tannins Action:** Tannins are astringent chemicals that possess anti-inflammatory and antimicrobial activity. They are capable of causing reduction in swelling and pain, which may render them effective in the treatment of tension headaches or headaches associated with sinus congestion.[44]

**4. Saponins Action:** Saponins exhibit anti-inflammatory and antioxidant action. They are potentially able to influence the immune system and suppress systemic inflammation with the possible indirect consequence of minimizing headache pain.[45]

**5. Phenolic Compounds Activity:** The phenolic compounds in Sesbania grandiflora are also the cause of its antioxidant and anti-inflammatory activity. Phenolic compounds have the ability to scavenge free radicals, which can potentially result in decreased oxidative stress within the body, something that can potentially result in causation of certain types of headache. [46]

**6. Terpenoids Action:** Terpenoids found in most plants have shown a variety of therapeutic activities like anti-inflammatory and analgesic activity. These compounds can lead to the relief of pain by preventing inflammation and increasing blood flow.[48]

7. Action of Essential Oils: Leaves and flowers of Sesbania grandiflora are full of essential oils, which may have medicinal actions in alleviating symptoms of headache. Some volatile oils have a soothing and relaxing effect on the body, and they might relieve migraine discomfort.[51]

#### 1.2. PHARMACOLOGICAL PROPERTIES:



Diagram:2 Pharmacological Properties [56,57,58,59,60,61]

#### 1.2.1. Pharmacological Properties Relevant To Headache (Migraine):

1. Anti-inflammatory Activity: Sesbania grandiflora is a rich source of bioactive compounds such as flavonoids, alkaloids, and phenolics that have shown anti-inflammatory activities. Since migraine headache usually comes with neuroinflammation, these compounds may well curb the symptoms by decreasing nervous system inflammation.[56]

2. Antioxidant Activity: The herb possesses strong antioxidant activity. Oxidative stress has been hypothesized to play a role in the pathophysiology of migraines, and hence the antioxidant activity of Sesbania grandiflora may neutralize free radicals, possibly decreasing the frequency or severity of migraines.[57]

**3. Analgesic** (**Pain-relieving**): Effects There are indications from some studies that Sesbania grandiflora is mildly analgesic. It can alleviate pain, and this could be used to treat severe pain experienced in migraines. This could be caused by the presence of chemicals such as alkaloids and flavonoids, which have been associated with the reduction of pain.[58]

**4. Neuroprotective Effects:** The presence of saponins and flavonoids could provide neuroprotective effects, which could protect neurons from damage. This could be beneficial since migraines have been associated with alterations in brain activity, and the protection of the involved neural pathways could reduce the frequency or severity of migraine attacks.[59]

5. Vasodilation Effects: Some research has indicated mild vasodilatory effects for Sesbania grandiflora. Since the migraine headache is usually defined by vasoconstriction that precipitates vasodilation, the chemicals causing vasodilation can restore normal blood supply and diminish migraines.[60]

**6. Anti-anxiety/Mood Stabilizing Effects:** Migraines are often precipitated by stress and anxiety. Flavonoids and alkaloids in Sesbania grandiflora have the potential for mild anxiolytic (anti-anxiety) activity. By lowering stress levels, it could minimize stress-induced migraines[61].

**2.3. MIGRAINE:** A migraine is a form of headache that is usually severe and will produce severe, throbbing pain, usually on one side of the head. It is usually accompanied by nausea, vomiting, and sensitivity to sound or light. Migraines may persist for hours or days and may disrupt daily activities.[62] There are a number of phases to a migraine attack 1. Prodrome (pre-headache phase): This may happen a day or two prior to the migraine and can involve symptoms such as mood swings, food cravings, tiredness, stiffness in the neck, or yawning. 2. Aura: There are individuals who go through this phase prior to the headache, and it can consist of visual disturbances such as flashing lights, blind spots, or zigzag lines. It can also involve other sensory disturbances like tingling in the limbs or speech difficulty. 3. Headache: The headache is typically severe, throbbing, and may be unilateral on the head. It is often aggravated by exertion, light, sound, or odors. 4. Postdrome (post-headache stage): After the headache is over, a person may be drained or disoriented, experiencing what has been termed a "migraine hangover."The causes of migraines may differ but typically consist of stress, certain foods, dehydration, poor sleep, changes in hormone levels, or external factors such as bright light or pungent odors.[63]

#### Symptoms:

Headache Pain

- Aura: Flashing lights, Zigzag lines, Blind spots (scotomas), Tingling or numbness in the face, hands, or feet, Difficulty speaking or understanding speech
- Nausea and Vomiting
- Sensitivity to Light and Sound (Photophobia and Phonophobia)
- Neck Stiffness
- Postdrome Symptoms (Migraine Hangover)

# 1.3.1 Classification Of Migraine:



#### 1.3.2. Pathophysiology Of Migraine:



Diagram: 4 Pathophysiology Of Migraine [67, 68, 69]

# 2. OBJECTIVE:

- **O** To investigate the pharmacological activities of Sesbania grandiflora for its therapeutic value in the treatment of migraine.
- **O** To assess the anti-inflammatory and analgesic activities of Sesbania grandiflora in the treatment of migraine symptoms.
- **O** To explore the neuroprotective activity of Sesbania grandiflora against migraine-induced neurological disturbances.
- **O** To determine the bioactive compounds of Sesbania grandiflora responsible for migraine mitigation.
- O To assess the effectiveness of Sesbania grandiflora on decreasing the frequency, severity, and duration of migraine attacks.
- **O** To establish the safety and side effects of Sesbania grandiflora among migraine patients.
- O To investigate the possible integration of Sesbania grandiflora as complementary or alternative medicine for migraine treatment

#### **3. REVIEW OF LITERATURE:**

- 1. The book by Ansil PN, Soumya S, and Shafna S provides an in-depth analysis of Sesbania grandiflora, emphasizing its vast pharmacological potential. Given its diverse medicinal properties, the plant holds promise for the development of natural therapeutic agents. Further research and standardization are necessary to fully harness its benefits in modern medicine. [1]
- 2. Pradhan and Choudhury's study provides valuable insights into the clinical characterization of neck pain in migraine patients. The high prevalence and temporal association of neck pain with migraine attacks underscore the importance of considering cervical factors in the management of migraine. Further research is warranted to explore the underlying mechanisms linking neck pain and migraine, which could lead to more effective and personalized treatment approaches.[3]

#### 4. PLAN OF WORK:

The planned study on "Neurotherapeutic Prospects of Sesbania grandiflora: A Novel Phyto-Based Approach for Migraine Management" will begin with a thorough literature review to understand the traditional uses of Sesbania grandiflora and the pathophysiology of migraines. Fresh plant material will be collected, authenticated, and extracted using solvents like ethanol or methanol. These extracts will undergo phytochemical screening to identify active compounds such as flavonoids, alkaloids, and phenolics, which are known for their neuroprotective potential. The antioxidant and anti-inflammatory properties of the extracts will be evaluated through in vitro assays. Promising extracts will then be tested in animal models of migraine to assess their effectiveness in reducing symptoms and related biochemical markers. Mechanistic studies will explore how the extract influences neurotransmitters and oxidative stress pathways. Toxicity studies will also be carried out to confirm the safety of the plant extract. The overall goal is to scientifically validate Sesbania grandiflora as a potential natural treatment for migraines.

# 5. METHOD AND MATERIALS:

# 5.1 Collection Of Plant Materials:

The leaves and flowers of Sesbania grandiflora were collected from a local area in Maharashtra, a region recognized for its rich and varied plant life. This location provided an ideal environment for sourcing the plant material due to the abundance of diverse flora found in the area.[70] Careful attention was given to selecting the leaves and flowers at their peak growth stage, ensuring that they were mature, healthy, and free from any visible signs of disease, pests, or damage. The process of gathering these plant parts involved ensuring that only the best specimens were chosen for further study.[71]

#### 5.2 Preparation Of Crude Extract:

The collected leaves and flowers of Sesbania grandiflora were carefully washed under running water to remove any dirt, dust, or contaminants. After washing, the excess water was removed by allowing the plant material to air dry at room temperature.[72] After drying, the leaves were ground into powders. The bioactive principles from the plant were extracted by using 70% ethanol solvents in Soxhlet extraction apparatus. The 20g of powdered leaf materials were packed and placed in the Soxhlet apparatus.[73] Then the 100 ml (70% ethanol) were added, and the apparatus was switched on in order to get the bioactive compounds. Under ethanol solvent, the extraction was continued for a minimum of 6 to 8 hours (until almost no plant residues were left in the recycled solvents). Then the excess ethanol solvent was evaporated.[74] By Using Clevenger Apparatus After evaporation, the sample was in the form of powder (concentrated form), and this form was stored at 4°C until further use. During the assay, the bioactive compound was diluted by using double-distilled water or standard physiological saline (0.9% NaCl).[75]



Diagram:5 Preparation Of Crude Extract

#### 5.3 Phytochemical screening:

**1. Test For Alkaloids:** The plant extracts were dissolved separately in dilute hydrochloric acid and then filtered to get clear solutions. In Dragendorff's Test for alkaloids: the filtrates were then treated with Dragendorff's reagent, a solution of potassium bismuth iodide. If the extract contains alkaloids, the addition of the reagent leads to the development of a red precipitate. This red precipitate serves as a positive indicator, confirming the presence of alkaloids in the sample.[76]

2. Test For Flavonoids: Alkaline Reagent Test: the plant extract is treated with a few drops of sodium hydroxide (NaOH) solution. Upon reaction, the solution turns a clear yellow color. The yellow color is a positive test for flavonoids. But if dilute acid (usually hydrochloric acid) is added to the solution afterwards, the yellow color will turn pale and disappear. This color shift is a typical reaction, indicating the existence of flavonoids in the extract.[77]

**3. Test For Saponins:** Froth Test the extract of the plant is initially diluted with 20 ml of distilled water. The mixture is then shaken vigorously in a graduated cylinder for a duration of 15 minutes. Upon shaking, the presence of saponins is established if there is a stable foam layer about 1 cm high on the surface of the liquid. Foam formation is a definitive sign that saponins are present in the extract.[78]

**4. Test Phenol:** Ferric Chloride Test for phenols, ferric chloride (FeCl<sub>3</sub>) solution (3 to 4 drops) is added to the plant extract. The reaction gives a characteristic bluish-black color if there are phenolic compounds in the extract. The color change is a positive indication of the presence of phenols in the plant material. Sometimes the intensity of the color may differ, but the bluish-black color is a major confirmation.[79]



Diagram:6 Phytochemical screening





Diagram: 7 Mechanisms Of Actions Sesbania Grandiflora [80,81,82,83,84,85]

#### 6. FUTURE PROSPECTS:

Sesbania grandiflora use in the treatment of migraines appear to be promising, though further studies are required to ascertain its potential. With the bioactive components present in the plant, such as flavonoids, alkaloids, and phenolic acids, which have been reported in preliminary studies to possess anti-inflammatory, analgesic, and antioxidant properties, there is a firm foundation for exploring its use in migraine therapy. These drugs can provide a more natural alternative or add-on therapy to conventional migraine medication, especially for patients who want herbal or non-pharmacological therapy. However, before proceeding, there must be more credible clinical human trials. Properly designed large-scale clinical trials must be done in order to find the efficacy, safety, and dosing of the plant as an anti-migraine drug. These trials would be helpful in assessing the efficacy of Sesbania grandiflora would also be important towards establishing its incorporation in standard treatment protocols. In the years ahead, with increasing interest in natural and alternative therapies, Sesbania grandiflora could be an important addition to choices for migraine patients. Thus, although promising, more stringent human trials are indicated to ascertain its actual efficacy, maximum dosage, and safety profile. Unless more conclusive clinical evidence emerges, Sesbania grandiflora would only be an adjunct therapy, not a first-line drug for migraine control

# 7. RESULT:

The results of the studies on Sesbania grandiflora for migraine management are encouraging but still not conclusive. Initial studies show that the bioactive compounds of the plant, including flavonoids, alkaloids, and phenolic acids, are therapeutic because they are anti-inflammatory, analgesic, and antioxidant. @ These would likely work to reduce migraine attacks by inhibiting inflammation, pain, and oxidative stress, which are typically found with migraines. The natural application of the plant in many traditional systems of medicine, including Ayurveda, also speaks to its worth as a naturally occurring pain and inflammation remedy. Nonetheless, even with these encouraging signs, there is as yet scant clinical data that definitively attests to its efficacy as a human migraine treatment. Much research to date has been either laboratory or animal model based, and no major human clinical trials have yet been reported.

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