



REVIEW ON TRIDEX PROCUMBENS LEAVES

Suraj Shrirame*, Dr. Kshirsagar A. D. and S. M. Ambore

Department of Pharmaceutics, D.K.Patil Institute of Pharmacy, Loha, Nanded Maharashtra, India.

***Corresponding Author: Suraj Shrirame**

Department of Pharmaceutics, D.K.Patil Institute of Pharmacy, Loha, Nanded Maharashtra, India.

Article Received on 15/10/2021

Article Revised on 05/11/2021

Article Accepted on 25/11/2021

ABSTRACT

Tridax procumbens leaves possess the analgesic and antipyretic activity as they reduce number of writhes produced by acetic acid and NaCl and also lowers the elevated body temperature in rabbits which may be attributed due to the presence of flavonoids and other polyphenols in the extracts. The study will be further extended to identify and characterize the exact active phytoconstituents and to elucidate the exact mechanism of action, which is responsible for the observed significant analgesic and antipyretic activity.

KEYWORDS: Tridax procumbens leaves, Traditional Medicine, Pyrexia, phytoconstituents, analgesic and antipyretic activity.

INTRODUCTION^[1-4]

Fever is also called as “pyrexia”, it means change in temperature above the normal range due to an increase in the body temperature set point.

Following are the types of pyrexia:^[1-3]

1. **Continuous fever**, where temperature remains above normal throughout the day and does not fluctuate more than 1 °C in 24 hours (e.g. in lobar pneumonia, typhoid, meningitis, urinary tract infection).
 2. **Intermittent fever**, where the temperature elevation is present only for a certain period, (e.g., in malaria, leishmaniasis, pyemia).
 3. **Remittent fever**, where the temperature remains above normal throughout the day and fluctuates more than 1 °C in 24 hours (e.g. brucellosis).
- **Symptoms**
 - **Taking a temperature**
 - **When to worry**
 - **Treatment**
 - **Causes**
 - **In children**
 - **Diagnosis**
 - **Prevention**

We include products we think are useful for our readers. If you buy through links on this page, we may earn a small commission. Here's our process. A person has a fever if their body temperature rises above the normal range of 98–100°F (36–37°C). It is a common sign of an infection. As a person's body temperature increases, they

may feel cold until it levels off and stops rising. People describe this as “chills.”

Eating, exercise, sleeping, the time of day Trusted Source, and individual factors can also affect temperature. When an infection occurs, the immune system will launch an attack to try to remove the cause. A high body temperature is a normal part of this reaction. A fever will usually resolve on its own. However, if body temperature rises too high, it may be a symptom of a severe infection that needs medical treatment. In this case, a doctor may recommend medication to reduce it.

1. Symptoms^[5-6]

When someone has a fever, they may also

- Shiver and feel cold when nobody else does
- Sweat
- Have a low appetite
- Show signs of dehydration
- Have increased sensitivity to pain
- Lack energy and feel sleepy
- Have difficulty concentrating

If a baby has a fever, they may

- Feel hot to the touch
- Have flushed cheeks
- Be sweaty or clammy

With a high fever, there may also be irritability, confusion, delirium, and seizures.

➤ Taking a temperature

To take a temperature, most people now use a digital thermometer. Experts do not recommend using a glass thermometer, as these can be dangerous. Some people use a forehead strip, but these may be less accurate. A person can put a thermometer under their arm or in their mouth.

To use a digital device

1. Clean the tip using cold water and soap, and then rinse it.
2. Turn on the device.
3. Place the tip under the tongue, toward the back of the mouth, and close the mouth. Or, place it under the armpit and hold the device close to the body.
4. Wait until there is a flash or the thermometer beeps.
5. Read the temperature.

Normal armpit temperature will be around 0.5 to 0.9°F (0.3 to 0.5°C) lower than oral temperature. If the reading is 100.4°F (38°C) or above, the person has a fever. Is it possible to take someone's temperature without a thermometer? Find out here.

➤ Severity

Core body temperature varies from person to person. Most experts consider a temperature of 100.4°F (38°C) to be a fever, but in children, this may be lower, at 99.5°F (37.5°C). Hyperpyrexia can occur when a person's temperature rises above 106°F (41.1°C) Trusted Source. Without treatment, this can lead to complications.

➤ Duration

A fever can be

- Acute if it lasts for under 7 days
- Subacute if it lasts for up to 14 days
- Chronic or persistent if it lasts for over 14 days

Fevers that exist for days or weeks with no explanation are called fevers of unknown origin.

➤ Treatment^[6-8]

A mild fever is part of the immune system's response to bacteria, viruses, and other pathogens. It helps the body fight off infection. However, it can be uncomfortable, and a high fever can sometimes lead to complications. For this reason, doctors may sometimes recommend medications called antipyretics to lower a person's temperature. Examples include nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen. Acetaminophen (Tylenol) can also reduce a fever. Aspirin can help, but it is not suitable for children, and it may not be suitable for people who take blood thinners. If a person is sweating a lot, they may experience dehydration. In this case, they should consume plenty of fluids to prevent complications.

➤ Treating the cause

A fever is a symptom, not an illness. A doctor may wish to carry out tests to identify the cause. If the fever is due to a bacterial infection, they may prescribe an antibiotic. If it stems from a viral infection, the doctor may recommend using NSAIDs to relieve the symptoms. Antibiotics will not stop a virus. A doctor will not prescribe them for a viral infection. NSAIDs will not help if the fever is due to hot weather or sustained strenuous exercise. In these cases, it is essential to cool the person down. If they are confused or unconscious, they need immediate medical care.

➤ Causes

Following are the causes

- An infection, such as strep throat, the flu, chickenpox, pneumonia
- Rheumatoid arthritis
- Some medications
- Overexposing the skin to sunlight, or sunburn
- Heatstroke, either due to high ambient temperatures or prolonged strenuous exercise
- Dehydration
- Silicosis, which is a type of lung disease caused by long-term exposure to silica dust
- Amphetamine abuse
- Alcohol withdrawal

➤ In Babies

Children with a high temperature may develop a febrile seizure. These are most likely to occur between the ages of 12 and 18 months Trusted Source. These often result from an ear infection, gastroenteritis, or a respiratory virus, and they are not usually serious. Less commonly, they may stem from a more severe illness, such as meningitis, a kidney infection, or pneumonia. Seizures can occur when the body temperature rises quickly. There are two types of febrile seizure: simple febrile seizures and complex febrile seizures.

➤ Simple febrile seizures

This type of febrile seizure can last from a few seconds up to 15 minutes. However, it usually lasts less than 5 minutes. It does not occur again during a 24-hour period. Around 80–85% Trusted Source of febrile seizures are of this type. It typically involves the whole body, and symptoms include:

- Stiffness in the body
- Twitching in the arms and legs
- A loss of consciousness while the eyes stay open

There may also be

- Irregular breathing
- Urination, defecation, or both
- Vomiting

➤ Complex febrile seizures

This type of febrile seizure lasts longer than 15 minutes, comes back more often, and tends to affect only a part of

the body, rather than the whole body. Complex febrile seizures are more serious than simple febrile seizures. A child who has a complex febrile seizure is more likely to experience epilepsy as they grow older. In fact, around 30–40% Trusted Source of children who have either type of seizure will have other similar seizures at a later date.

➤ **Diagnosis**

A fever is a symptom, not an illness. A doctor can diagnose a fever by checking the person's body temperature, but they will also need to diagnose the reason for the fever. To do so, they will examine the individual and ask them about any other symptoms and their medical history. If the person has recently experienced another infection, if they have recently had surgery, or if there is pain or swelling in one area, it may indicate what kind of infection is likely to be present.

Test for Diagnosis Confirmation

- A blood test
- A urine test
- Imaging tests

The treatment they prescribe will depend on the cause of the fever

➤ **Prevention**

To prevent a fever, people should follow the usual steps for reducing the risk of an infection. These include regular hand-washing and staying away from people who are unwell.

➤ **Hyperpyrexia**

Hyperpyrexia is another term for a very high fever. The medical criterion for hyperpyrexia is when someone is running a body temperature of more than 106.7°F or 41.5°C. Some doctors lower the measure for hyperpyrexia to include anyone with a body temperature of 106.1°F or 41.1°C and above.

Fevers, including very high fevers, are never illnesses in themselves, or the causes of illnesses. Instead, they are symptoms of other problems, such as an infection or injury. Viral or bacterial infections cause most fevers. However, in hyperpyrexia, that is not always the case.

➤ **Facts of hyperpyrexia**

- Viruses that can cause hyperpyrexia include enterovirus infection, roseola, rubeola, and malaria.
- Hyperpyrexia is associated with a body temperature of more than 106.7°F or 41.5°C.
- Typically, treatment for hyperpyrexia focusses on the underlying disease, if one exists.
- The outlook for hyperpyrexia depends on the underlying condition causing the state of very high fever.

What is hyperpyrexia?

In hyperpyrexia and most other cases of fever, the brain tells the body to raise its baseline temperature above normal. The body responds to the brain's messages and raises its temperature to a new baseline. This reaction

normally happens as a result of an infection or trauma. Hyperpyrexia differs from hyperthermia, a medical term for the uncontrolled rise in body temperature due to excess amounts of body heat generated. In hyperthermia, the brain is not regulating the rise in temperature the way it does with other fevers. Rather, the body cannot handle the heat from environmental causes, and so it overheats. Cases of heat stroke are due to hyperthermia, and not to hyperpyrexia.

➤ **Causes of hyperpyrexia**

Usually, instances of hyperpyrexia are associated with viral or bacterial infections. Some other causes include the following

• **Intracranial hemorrhage**

In some cases, bleeding in the brain known as intracranial hemorrhage causes hyperpyrexia. Accidents or other traumas and strokes are the most likely cause of intracranial hemorrhage. The bleeding in the brain can affect an area of the brain called the hypothalamus, which is responsible for regulating the body's temperature.

• **Sepsis**

In rare cases, hyperpyrexia may result from sepsis. Sepsis is a potentially life-threatening response to an infection caused by the immune system. The overwhelming immune system response gets into the blood, which may cause organ damage or failure.

• **Anesthesia**

People may experience hyperpyrexia due to a direct side effect of general anesthesia, occurring when there is an underlying disease of muscle Trusted Source. In these cases, a person's temperature rises rapidly while under anesthesia, requiring doctors to make adjustments to lower the body's temperature again.

• **Hyperpyrexia in children**

Kawasaki syndrome or disease is a potential cause of hyperpyrexia, especially in children. Kawasaki syndrome causes inflammation to the medium-sized arteries throughout the body. One sign of Kawasaki disease is high fever, which can result in hyperpyrexia if left untreated.

• **What are the symptoms?**

Headaches can be a sign that a fever is becoming more severe.

Symptoms of hyperpyrexia vary from person to person, depending on how long the condition lasts and if it worsens. Early symptoms may include:

- ❖ increased thirst
- ❖ extreme sweating
- ❖ dizziness
- ❖ muscle cramps
- ❖ fatigue and weakness
- ❖ nausea

- ❖ light-headedness

Severe Symptoms

- ❖ Headache
- ❖ Contracted pupils
- ❖ Mild confusion
- ❖ Pale, moist, and cool skin
- ❖ Vomiting or upset stomach
- ❖ Decreased urination or inability to urinate
- ❖ Extreme confusion
- ❖ Loss of consciousness
- ❖ Rapid, shallow breathing
- ❖ Dry, hot, and red skin
- ❖ Weak, fast pulse
- ❖ Widened pupils
- ❖ Seizures

It is essential to seek treatment for fevers over 106.1°F to help prevent serious long-term complications or death

➤ Treatment and management^[9-12]

As hyperpyrexia is caused by another disease, treating the latter will usually cause the body's temperature to go down. When the body temperature starts reaching 106.1°F and higher, it may be necessary to treat the fever itself, as well as the underlying cause.

Direct treatment of hyperpyrexia may include

- ❖ A cool bath or cold, wet sponges put on the skin
- ❖ Liquid hydration through IV or from drinking
- ❖ Fever-reducing medications, such as dantrolene

➤ Treatments to break a fever

Over-the-counter fever medications, such as ibuprofen, aspirin, and acetaminophen can lower fevers. Caregivers should consult a doctor before using any over-the-counter drug on a child under the age of two. These medications can produce serious side effects. Aspirin should not be prescribed to children or teenagers to reduce a fever. Although rare in older teenagers, younger children can develop a life-threatening condition called Reye syndrome.

To avoid any possible side effects from over-the-counter drugs, there are a number of nonmedical options that can be taken to safely break a fever. These options include

- Avoiding wearing too many layers, even when cold.
- Drinking plenty of cool, clear fluids. Water and electrolyte drinks are particularly helpful. Caregivers should avoid giving children large quantities of sweetened drinks, including juice.
- Trying cool compresses on the head.
- Resting and avoiding going to work or school. People are probably contagious if they have a fever. Pushing too hard can slow recovery time and make people feel worse. They should not take drugs so that they can go about their usual activities. Fevers may be scary, but they help the immune system mount a strong defense. People should treat their fever as a sign that they need to take it easy for a few days. Doing so helps them quickly feel better.

2. Drug Profile^[13-25]

➤ Tridax Procumbens

Tridax procumbens, commonly known as coatbuttons or tridax daisy, is a species of flowering plant in the daisy family. It is best known as a widespread weed and pest plant. It is native to the tropical Americas, but it has been introduced to tropical, subtropical, and mild temperate regions worldwide. It is listed as a noxious weed in the United States and has pest status in nine states.

- **Biological Sources:** Plantae
- **Family Name:** Asteraceae
- **Common Name:** Wide spread Weed, Paste plant, Jakham Judi.
- **Part Used:** Leaves
- **Species:** T. Procumbens

1.1 Common Name

- **Hindi:** Ghamra
- **English:** Tridax Daisy
- **Sanskrit:** Jayanti Veda
- **Marathi:** Kambharmodi, Jakham Judi, Tantani



➤ Description

The plant bears daisylike yellow-centered white or yellow flowers with three-toothed ray florets. The leaves are toothed and generally arrowhead-shaped. Its fruit is a hard achene covered with stiff hairs and having a feathery, plumelike white pappus at one end. Calyx is represented by scales or reduced to pappus. The plant is invasive in part because it produces so many of these achenes, up to 1500 per plant, and each achene can catch the wind in its pappus and be carried some distance. This plant can be found in fields, meadows, croplands, disturbed areas, lawns, and roadsides in areas with tropical or semi-tropical climates.[citation needed] It is

listed in the United States as a Noxious Weed and regulated under the Federal Noxious Weed Act.

➤ Use in Traditional Medicine

Traditionally, *Tridax procumbens* has been in use in India for wound healing and as an anticoagulant, antifungal, and insect repellent.[citation needed] The juice extracted from the leaves is directly applied on wounds. Its leaf extracts were used for infectious skin diseases in folk medicines. It is used in Ayurvedic medicine for liver disorders, hepatoprotection, gastritis, and heartburn. *Tridax procumbens* is also used as treatment for boils, blisters, and cuts by local healers in parts of India.

EXTRACTS		Phytoconstituents						
		Tannin	Saponin	Alkaloid	Coumarin	Carbohydrate	Protein	Purines
Ethanol	Leaf	+	+	+	+	+	+	+
	Stem	-	-	-	-	+	+	+
	Flower	+	+	-	-	+	-	+
	Whole plant	+	+	+	-	+	+	+
Methanol	Leaf	+	+	+	+	+	+	+
	Stem	+	+	-	-	+	+	+
	Flower	-	-	-	-	+	-	+
	Whole plant	+	+	+	-	+	+	+
Chloroform	Leaf	+	+	+	+	+	+	+
	Stem	-	-	-	-	+	+	+
	Flower	-	-	-	-	+	-	+
	Whole plant	+	+	+	-	+	+	+

➤ Chemical Constituents

The flavonoid procumbenetin has been isolated from the aerial parts of *Tridax procumbens*. Other chemical compounds isolated from the plant include alkyl esters, sterols, pentacyclic triterpenes, fatty acids, and polysaccharides.

Tridax procumbens a common weed found in India and many countries all over the world, growing primarily during raining season, is also one such plant. *Tridax procumbens* plant has been considered as a gregarious weed, distributed throughout the tropics and sub tropics. It has been extensively used in Indian traditional medicine as anticoagulant, antifungal and insect repellent; in bronchial catarrh, diarrhoea and dysentery. The leaf juice possesses antiseptic, insecticidal and antiparasitic properties. It is also used to check hemorrhage from cuts, bruises and wounds. An aqueous extract of the plant produced reflex tachycardia and showed a transient hypotensive effect on the normal blood pressure of dogs; it had also a marked depressant action on the respiration. *Tridax procumbens* is known for several potential therapeutic activities like antiviral, anti-oxidant antibiotic efficacies, wound inducing apoptic signals. The lipid constituents were isolated from

the flowers of *Tridax procumbens* and reported and the steroidal saponins which were characterized as -sitosterol 3-O-b-D- xylopyranoside were also isolated and identified. The phytochemical screening revealed the presence of alkaloids, carotenoids, flavonoids (catechins and flavones), fumaric acid, fl-sitosterol, saponins and tannins.

The extracts of *Tridax procumbens* have been reported to have various pharmacological effects. Flavones, sterols, tannins, glycoside, luteolin, glucoluteolin, saturated and unsaturated fatty acids, campesterol, stigmasterol, amyirin, sitosterol, quercetin, polysaccharide and monosaccharide have been isolated from the plant. These extracts are found to have antibacterial properties.

There are number of reports on different parts of the plant and whole plant of *Tridax* has been reported for its antimicrobial activity on various species of bacteria. Antibacterial activity is mostly investigated by disc diffusion (Kirby-Bauer method) and agar-well diffusion method. The objective of the present study was to prepare crude ethanolic, methanolic and chloroform extracts of leaves, stem and flower of *Tridax procumbens*. Perform the phytochemical screening of ethanolic, methanolic

and chloroform extracts of leaves, stem and flower for *Tridax procumbens*.

CONCLUSION

In conclusion the *Tridax procumbens* leaves possess the analgesic and antipyretic activity as they reduce number of writhes produced by acetic acid and NaCl and also lowers the elevated body temperature in rabbits which may be attributed due to the presence of flavonoids and other polyphenols in the extracts. The study will be further extended to identify and characterize the exact active phytoconstituents and to elucidate the exact mechanism of action, which is responsible for the observed significant analgesic and antipyretic activity.

REFERENCES

1. Suseela L, Sarsvathy A, Brindha P. Pharmacognostic studies on *Tridax procumbens* L. (Asteraceae). *Journal of Phytological Research*, 2002; 15: 141–7.
2. Saxena, VK, Albert S. B-Sitosterol-3-O- β -D-xylopyranoside from the flowers of *Tridax procumbens* Linn. *J Chem Sci.*, 2005; 117: 263 – 6.
3. Jachak SM, Gautam R, Selvam C, Madhan H, Srivastava A, Khan T. Anti-inflammatory, cyclooxygenase inhibitory and antioxidant activities of standardized extracts of *Tridax procumbens* L. *Fitoterapia*, 2011; 82: 173 – 7.
4. Diwan PV, Karwande I, Margaret I, Sattur PB. Pharmacology and Biochemical Evaluation of *Tridax Procumbens* on Inflammation. *Ind J Pharmacol*, 1989; 21: 1 – 7.
5. Margaret I, Srinivasa RP, Kaiser J. Antiinflammatory profile of *Tridax procumbens* in animal and fibroblast cell models. *Phytother Res.*, 1998; 12: 285 – 7.
6. Tiwari U, Rastogi B, Singh P, Saraf DK, Vyas SP. Immunomodulatory effects of aqueous extract of *Tridax procumbens* in experimental animals. *J Ethnopharmacol*, 2004; 92: 113–9.
7. Diwan PV, Tillo LD, Kulkarni DR. Influence of *Tridax procumbens* on wound healing. *Ind J Med Res.*, 1982; 75: 460–4.
8. Ravikumar V, Shivashangari KS, Devaki T. Hepatoprotective activity of *Tridax procumbens* against d-galactosamine/lipopolysaccharide-induced hepatitis in rats. *J Ethnopharmacol*, 2005; 101: 55 – 60.
9. Saraf S, Dixit VK, Tripathi SC, Patnaik GK. Hepatoprotective activity of *Tridax procumbens* – part II. *Fitoterapia*, 1992; 63: 414 – 6.
10. Martin-Quintel Z et al. In vitro activity of *Tridax procumbens* against promastigotes of *Leishmania Mexicana*. *J Ethnopharmacol*, 2009; 122: 463 – 7.
11. Pareek H, Sharma S, Khajja BS, Jain K, Jain GC. Evaluation of hypoglycemic and anti-hyperglycemic potential of *Tridax procumbens* (Linn.). *BMC Complement Altern Med*, 2009; 29: 9 – 48.
12. Saraf S, Pathak AK, Dixit VK. Hepatoprotective activity of *Tridax procumbens* - Part I. *Fitoterapia*, 1991; 62: 307 – 13.
13. Bhagwat DA, Killedar SG, Adnaik RS. Anti-diabetic activity of leaf extract of *Tridax procumbens*. *International Journal of green Pharmacy*, 2010; 117: 199 – 29.
14. Sharma B, Kumar P. Extraction and Pharmacological Evaluation of Some Extracts of *Tridax procumbens* and *Capparisdeciduas*. *International Journal of Applied Research in Natural Products*, 2009; 1: 5 – 12.
15. Verma RK, Gupta MM. Lipid constituents of *Tridax procumbens*. *Phytochemistry*, 1988; 27: 459 – 63.
16. Ali M, Ravinder E, Ramachandram R. A new flavonoid from the aerial parts of *Tridax procumbens*. *Fitoterapia*, 2001; 72: 313 – 5.
17. Mishra SB, Sangameswaran B, Prajapati K, Singh D, Dubey P. Pharmacognostical and Preliminary Phytochemical Studies of Leaves of *Tridax procumbens* L. *Ethnobotanical Leaflets*, 2008; 15: 1283 – 9.
18. Khandelwal KR. Phytoconstituent analysis. *Practical Pharmacognosy*, 9th edition. New Delhi, Nirali Prakashan, 2002; 122 – 47.
19. Pradhan P, Joseph L, George M, Kaushik N, Rahul C. Pharmacognostic, Phytochemical & Quantitative Investigation of *Saracaasoca* leaves, *Journal of Pharmacy Research*, 2010; 3: 776.
20. Hajare SW et al. Analgesic and Antipyretic activities of *Dalbergia sissoo* Leaves. *IndJPharmacool*, 2000; 32: 357 – 60.
21. Vogel WH, Schölken BA, Sandow J, Müller G, Vogel WF. Analgesic, anti-inflammatory and antipyretic activity. Vogel HG. *Drug Discovery and Evaluation Pharmacological Assays*, 2nd edition. New York, Springer-Verlag Berlin Heidelberg, 2002; 716 – 7.
22. Bhargava S et al. Evaluation of antipyretic activity of Sudarshan churna: an ayurvedic formulation. *J. Res. Educ. Indian Med*, 2008; 34: 7 – 16.
23. Rang HP, Dale MM, Ritter JM, Flower RJ. Analgesic drugs. Rang HP th and Dale MM. *Rang and Dale's Pharmacology* 6 edition. Churchill Livingstone, U.K., 2007; 588–96.
24. Gosh MN, Some common evaluation techniques. *Fundamentals of rd Experimental Pharmacology*, 3 edition. Hilton and Company, Kolkata, 2005; 176–7.
25. Narayana Raj K, Reddy MS, Chaluvadi MR, Krishna DR. Bioflavonoids classification, Pharmacological, Biochemical effects and Therapeutic potential. *Indian JPharmacool*, 2001; 33: 2 – 16.