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Medicinal plant used in the treatment of dengue fever-an overview

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ABSTRACT

Dengue is an infectious diseases, it is caused by virus. It is transmitted by a mosquito of *Aedes aegypti*. Dengue produced in our body high fever, headache, joint pain and skin rashes. Allopathic system of medicine is not having the potential remedy for dengue fever. In ayurvedic system only cure the dengue fever, for example of papaya leaves, fenugreek, kiwi and wheatgrass etc., Without unwanted effect dengue is cure by this herbs.

Keywords: Dengue fever, papaya leaves, fenugreek, kiwi and wheatgrass

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Introduction:

Dengue is an infectious disease caused by a virus. The virus is transmitted by a type of mosquito (*Aedes aegypti*) that bites during daylight hours. The dengue virus belongs to the Flaviviridae family of viruses that cause diseases in humans. Dengue is the most common infection caused by viruses transmitted by mosquitoes. Dengue causes severe flu-like symptoms, such as: a high temperature (fever) of 40°C (104°F) or over severe headache, muscle and joint pain, facial flushing and skin rash.

Symptoms of dengue include:

Feeling as if patient have a severe case of flu
Severe headache

Eye pain

A high temperature (fever) of 40C (104F) or over (this can last for up to five days)

Severe aching in your joints (dengue is also known as 'breakbone fever')

Severe muscle pain (myalgia) of the lower back, arms and legs

Nausea and vomiting

Chills (shivering)

Flat red skin rash (it may appear two to five days after the fever starts, and a second rash that looks similar to measles appears when the disease has progressed)

Facial flushing.



Fig: *Aedes aegypti*

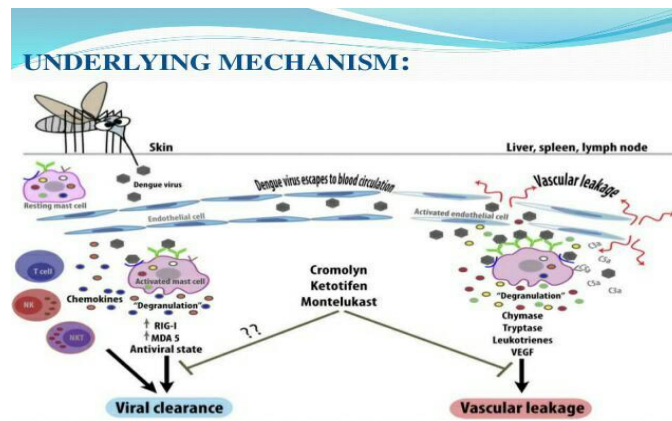


Fig: Mechanism of dengue

Aedes aegypti, Family: Flaviviridae . The yellow fever mosquito, is a mosquito that can spread dengue fever, chikungunya, Zika fever, Mayaro and yellow fever viruses, and other diseases. The mosquito can be recognized by white markings on its legs and a marking in the form of a lyreon the upper surface of its thorax.

Mechanism

Hemorrhagic Variant: The hemorrhagic dengue variant seems to be able to replicate in the human body only in macrophages. It is possible that the virus-antibody interactions actually help hemorrhagic viral replication by promoting cell infection. This is via specific

macrophage receptors--the Fc portion of the antibody molecule, or possibly via a protease-sensitive receptor.

Apparently, the antibodies attach to the virus's outer envelope, and then signal the larger macrophages. When a macrophage responds to the antibody signal and arrives on the viral scene, it engulfs the virus. However, the virus then takes control of the macrophage and replicates inside the macrophage instead of being destroyed by it. The virus is then carried throughout the body via the macrophage transports.

Physical reactions triggered by this involvement of the immune system include fevers from 104-107 °F, convulsions, shock, and death.

TREATMENT FOR DENGUE:

1) Herbal medications:

A) Papaya leaves:

It helps in increasing the platelet count and reduces the symptoms of fever like body ache, chills, feeling low, getting tired easily and nausea.



Fig: papaya leaf

Biological source: *Carica papaya*

Family: Caricaceae

Uses: Both have been shown to aid digestion, prevent constipation and clean the colon. Papain is also helpful in healing and preventing stomach ulcers." Papaya leaves are also rich in protease and amylase. Its high anti-inflammatory properties also reduce the inflammation of stomach and colon, Increases platelet count.

Constituents: papain, ascorbic acid, flavonoids, chymopapain, cyanogenic glucosides, cystatin, and glucosinolates.

B) Kiwi fruit:

It is the experience of people affected by dengue that consumption of whole Kiwi fruit or the fruit juice rapidly and instantaneously increases platelet count.

Biological source: *Actinidia deliciosa*

Family: Actinidiaceae

Uses: Increase platelet count, antioxidant, good source of fiber, used for asthma, digestion.

Constituents :vitamin C and E, serotonin and potassium, lutein and zeaxanthin.



Fig: Kiwi fruit



Fig: Fenugreek

C) Fenugreek:

These leaves are known to reduce fever and act as a sedative to ease pain and promote more restful sleep for patients. You can soak the leaves in water and then drink it.

Biological source: *Trigonella foenum-graecum*

Family: Fabaceae

Uses: Improves Digestive Problems and

Cholesterol Levels.

Reduces Inflammation inside the Body

Increases Libido in Men.

Promotes Milk Flow in Breastfeeding.

Constituents: proteins, amino acids, flavonoids, saponins, coumarin, lipids, vitamins, minerals, galactomannan fiber and alkaloids such as trigonelline.



Fig: Goldenseal

D) Goldenseal:

Goldenseal is a herb whose dried root is used to make medicine. It has the ability to clear up the symptoms of dengue fever very quickly and eliminate the virus from the body.

Biological source: *Hydrastis canadensis*

Family: Ranunculaceae

Uses: used for common cold, upper respiratory tract infections, stuffy nose, high fever, gastritis,

ulcers, diarrhea, constipation.

Constituents: Isoquinoline alkaloids such as berberine, canadine, Hydrastine.

E) Wheatgrass:

There are many known natural remedies in Ayurveda that help to maintain platelet count and wheatgrass is one of them.

Biological source: *Thinopyrum intermedium*

Family: Poaceae



Fig: Wheatgrass

Uses: Increase platelet count, healing property, magnesium, selenium, zinc, chromium, important blood builder. antioxidants like beta-carotene, vitamin-E.

Constituents: chlorophyll, minerals like



Fig: Giloy

F) Giloy:

It helps in maintaining the metabolic rate, strengthening the immune system and protects your body against infections. The inner bark of Neem, Rasont and **Giloy** taken in equal quantities with half tsp of warm water gives protection from infectious fevers.

Biological source: *Tinospora cordifolia*

Family: Menispermaceae

Uses: Helps to boost immunity, remove toxins, purifies blood, fights bacteria that causes diseases and also combats liver diseases and urinary tract infections.

Constituents: Columbin, tinosporaside, jatrorrhizine, palmatine, berberine, tembeterine, tinocordifolioside, choline, tinosporon, tinosporic acid, tinosporal.

2) Allopathic medications:

A) Acetaminophen:

- Acetaminophen (paracetamol) reduces fever by acting directly on hypothalamic heat-regulating centers, which increases dissipation of body heat via vasodilation and sweating. It is used in dengue infections to relieve pain and lower temperature when fever is thought to contribute to patient discomfort.

B) Crystalloids for fluid therapy:

- Isotonic (0.9%) sodium chloride solution or lactated Ringer solution is administered intravenously to maintain intravascular volume, blood pressure, and urine output.

- Oral rehydration solution and Electrolyte replacement solution also be given.

C) Dextran 40:

Dextran 40 is a polymer of glucose. When infused, it increases intravascular volume, blood pressure, and capillary perfusion used in dengue.

D) Albumin:

Human albumin is a sterile solution of albumin, which is the major plasma protein responsible for the colloid oncotic pressure of blood. Used for the treatment of dengue fever.

Contraindication:

- Avoid Aspirin & other salicylates since these may cause gastritis, bleeding & acidosis
- Avoid nonsteroidal anti-inflammatory drugs (NSAIDs); aside from possibly causing gastritis, gastrointestinal tract (GIT) bleeding & acidosis, NSAIDs also have an antiplatelet effect.

Dengue in India:

The annual number of dengue fever cases in India is nearly 300 times higher than officially reported, according to a study by US and Indian researchers.

The report also finds the sometimes-fatal viral disease, which is transmitted by mosquitoes, costs the emerging economic power at least \$1.1bn (£700m) each year in medical and other expenses.

Fig: Dengue scenario last six years

Dengue Cases in India

Reported cases of dengue in the last six years

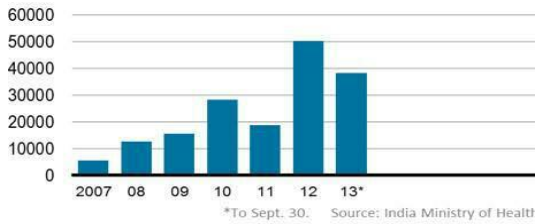


Fig: Dengue scenario state wise



Fig: prevention of dengue

We found that India had nearly 6m annual clinically diagnosed dengue cases between 2006 and 2012 – Almost 300 times greater than the number of cases that had been officially reported.

Prevention of dengue:

There is no vaccine to prevent human infection by this virus.

Personal protection and the environmental management of mosquitoes are important in preventing illness.

Prevent access of mosquitoes to an infected person with a fever.

Protect yourself from mosquito bites at all times in dengue areas. For tips on how to protect yourself, see Fight the Bite.

Stay away from highly infested areas and (if possible) stay indoors during the hours of dawn and dusk (when mosquitoes are more likely to feed).

Wear loose-fitting clothing. Mosquitoes are able to bite through tight-fitting clothes.

Sleep under a mosquito net to avoid being bitten at night.

Use insect repellent to avoid being bitten. Products containing N-diethylmetatoluamide (DEET) are effective but should not be used on babies under two years old.

Conclusion:

Dengue is an communicable diseases, it is caused by virus. It is transmitted by a mosquito of Aedes aegypti. Allopathic system of medicine is not having efficient potential remedy for dengue fever. In ayurvedic system only cures the dengue fever, so the therapy of dengue herbs is discussed here. These herbs are completely curing the dengue without any unwanted effect. This review paper is more useful for future investigator. Once investigation is over it will helpful for our society.

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