

Indigenous Plants used for Treatment of Dengue Fever

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The virus that causes dengue infects humans when infected mosquitoes bite them. *Aedes aegypti* mosquitoes are the main carriers of the disease. Dengue virus is the name of the virus that causes dengue (DENV). The treatment for dengue is not a specific medication. You'll receive advice from your doctor on how to deal with your problems. Numerous researches have demonstrated that compounds originating from plants may be suitable candidates for the creation of secure and effective treatments for certain illnesses.

Introduction

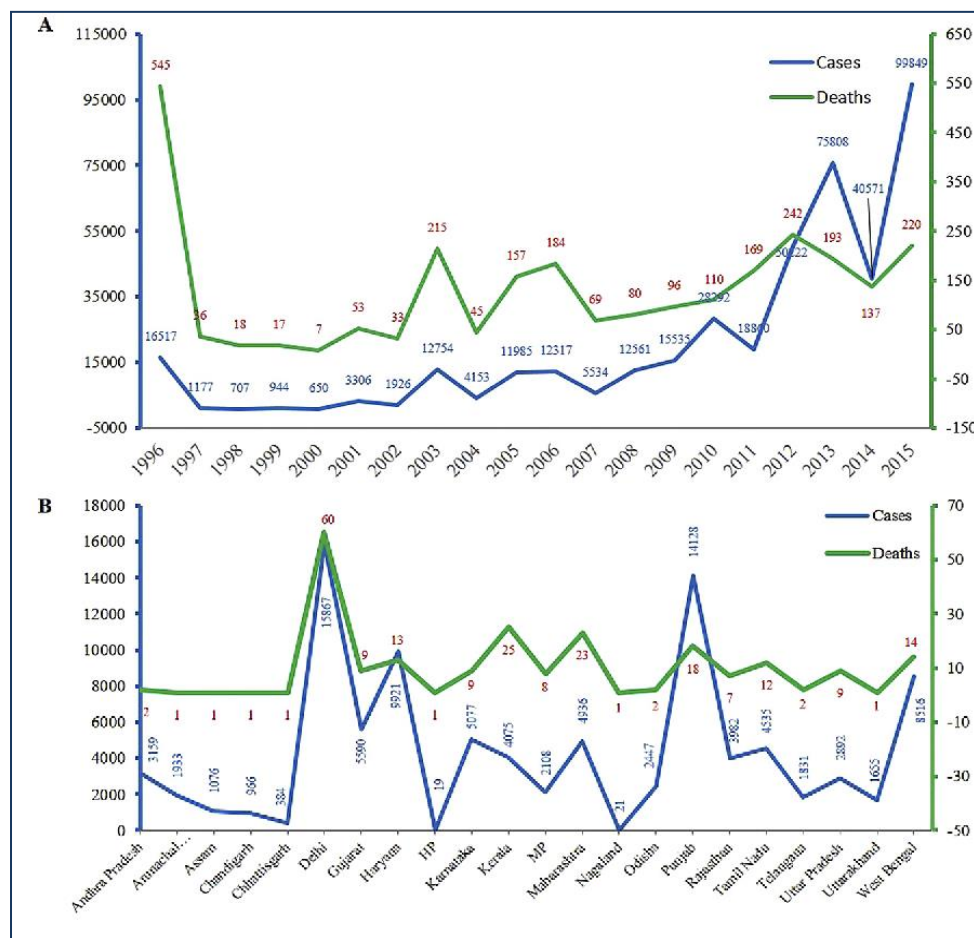
Through widespread transmission by female *Aedes aegypti* mosquito bites, the frequency of the viral virus Dengue has sharply increased in humans. The four closely related virus serotypes DENV-1, DENV-2, DENV-3, and DENV-4 are in charge of causing dengue. When a healthy person is bitten by an infected female *Aedes aegypti* mosquito, these viruses are typically spread. Once infected, humans serve as carriers and create a suitable environment for the virus's replication, which is then transmitted to uninfected vectors through bites [1]. Patients experience extremely high fevers in addition to some concomitant symptoms include mild to severe headache, joint and eye pain, nausea, rashes, and irritated glands. If not treated properly, dengue complicates and the patient experiences respiratory distress, fluid buildup, and serious bleeding.

Prior to 1970, only nine nations were recorded to have significant dengue epidemics [1]. In India, the dengue virus was initially discovered in 1944 in Kolkata from the serum samples of afflicted US soldiers [3]. The first significant outbreaks of dengue hemorrhagic fever and dengue shock syndrome occurred in Uttar Pradesh in 1996, close to Delhi and Lucknow, and the virus subsequently began to spread throughout India [3], [4], and [5].

Dengue viruses are currently prevalent in India, where significant numbers of fatalities are reported annually. India has a diverse ecosystem and a long history of employing plant-based medications for both curative and preventive healthcare. In the past, numerous plants have been used against infectious diseases, including viral infections. However, in recent years, there have been a lot of online and print publications that show how plants and their formulations can be used to treat dengue fever. This article's goal is to review the most recent dengue instances and the adapting, reporting, and Indian herbal treatments being used to treat the illness.

Status of Dengue infections and deaths in India

Utilizing the licensed version of www.indiastate.com, reported infected cases and dengue-related death in Indian states were carefully examined over the past 20 years. The information in Fig. 1(A&B) shows dengue cases, related deaths, and the prevalence of the disease in various Indian states and union territories from 1996 to 2015. Dengue cases increased significantly between 1996 and 2015, by more than 500%. Data show that dengue viruses are receiving all the necessary support systems in India, including good meteorological circumstances, a large supply of vectors, and an infection-prone human population. Despite an increase in incidence, a steady drop in mortality of roughly 40% since 1996(545 cases) has been seen.



Herbal treatment options for dengue

There are currently no specific, universally recognized medical therapies for dengue fever. The patient experiences significant suffering while receiving therapy for dengue, which is now addressed by professionals using a variety of adjuvant and alternative therapeutic methods. Patients frequently experience worry after they are diagnosed with dengue because there are no particular medications available like there are for other viral infections. Plant-based preparations and formulations have been tried and tested by traditional healers while also receiving scientific validation and documentation from contemporary researchers. This article describes a few locally grown indigenous plants with qualities that have been used to treat dengue.

Neem

Botanical name: *Azadiracta indica*

Family: Meliaceae

Vernacular name: Neem, Kadvo Limdo, Margosa tree

Part of use: Leaves



Morphological characters: Neem is a medium sized perennial tree. It is mainly evergreen tree but sometimes shed its leaves during the dry season. The branches are numerous and spreading. The bark is grey in color. The leaves are compound, alternate and petiolate. The flowers are numerous, white in color and fragrant. Neem fruits are drupe.

Chemical composition: Leaves yield quercetin and nimosterol as well as number of liminoids. Quercetin is known to have antibacterial and antifungal properties.

Home remedy for Dengue: In lab tests using animals, neem leaf extract was able to inhibit the growth of the dengue virus.

- Boil some fresh neem leaves in water; drinking the resulting liquid could hasten your recovery.
- To make neem juice, combine some fresh leaves with one cup of water, filter the mixture, and then, to taste, add honey or lemon juice [2].

Papaya

Botanical name: *Carica papaya*

Family: Caricaceae

Vernacular name: Papaya

Part of use: Leaves



Morphological characters: Papaya is a large herbaceous plant with a single erect stem. The Plant can be dioecius or monoecius. Leaves are simple and spirally arranged. Flowers are cream in color.

Chemical composition: Carica papaya leaf contains active components such as alkaloids, glycosides, tannins, saponins, and flavonoids, which are responsible for its medicinal activity.

Home remedy for Dengue: Papaya leaves have been used in traditional medicine for helping to reduce the fever in people with dengue. The increased platelet count and the balance of white blood cells help prevent bleeding, preventing the progression of the disease. You can consume papaya leaf juice to help with fever and restore normal platelet count.

- Papaya leaves are squeezed with a cup of water to produce a juice. This liquid is then strained and papaya juice is ready for use.

Karela

Botanical name: *Momordica charantia*

Family: Cucurbitaceae

Vernacular name: Karela, Bitter Melon

Part of use: Fruit



Morphological characters: Karela is a tendril climber. Leaves are simple, alternate and lobed. Stipules are absent. Unisexual flowers are present. Flowers are yellow in color. Fruits are oblong in shape.

Chemical composition: Karela consists alkaloids, momordicin, charantin, charine, cucurbitins etc.

Home remedy for Dengue: Karela extract showed inhibitory action against the multiplication of dengue virus in lab studies. You can use karela as a vegetable and use it in foods and dishes. You can also make karela juice to help with dengue.

- To make Karela juice, peel the skin, chop it into pieces, add a glass of water and blend this mixture. Once it's blended, strain the liquid. You can add more water to balance the taste, and your Karela juice is ready [2].

Tulsi

Botanical name: *Ocimum sanctum*

Family: Lamiaceae

Vernacular name: Tulsi

Part of use: Leaves



Morphological characters: Tulsi grows erect and with several branches. Tulsi leaves are simple, elliptic, oblong and entire or subserrate margins. Tulsi leaves filled with scents as it smells very good. Tulsi flowers are very small and purple in color. Tulsi fruits are very small and seeds are reddish yellow color.

Chemical composition: A Tulsi leaf contains volatile oil 71% euganol and 20% methyl eugenol.

Home remedy for Dengue: Tulsi leaves have been utilized to customarily forestall fever. The inhibitor activity of Tulsi leaves against the dengue infection has been seen in lab studies.

- For making Tulsi tea, boil few fresh tulsi leaves in water. Let it simmer for a while and strain it in a cup. You can add a few drops of lemon juice or a teaspoon of honey for taste [2].

Conclusion:

Non accessibility to particular target drugs against dengue without a doubt must be making uncertainly within the minds of tainted person. This circumstance not only makes freeze within the patients but moreover puts weight on clinicians who oversee the infection. This moreover made a difference Indian society to discover out elective alternatives for treatment and avoidance of dengue. There are some herbs like tulsi, neem, papaya, leaves and karela that you can use to relieve your symptoms at home. However, these herbs should not be used as an alternative to medicinal treatment provided by the doctor.

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