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Leaf Juice of Carica papaya L.: A Remedy of Dengue Fever

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Abstract

The dengue fever is one of the life threatening diseases caused by dengue virus (*Flavivirus*) that is borne and transmitted by mosquitoes. So far there is no effective medicine and vaccine approved for the dengue virus. The effect of papaya (*Carica papaya* L.) leaf juice in curing the dengue fever was studied. The leaf juice of papaya improved the health of patients by increasing the number of platelets.

Keywords: Papaya leaf; Dengue fever; Traditional herbal therapy

Introduction

The dengue fever is one of the life threatening diseases caused by dengue virus (*Flavivirus*) that is borne and transmitted by mosquitoes living in tropical and subtropical climates worldwide, mostly in urban and semi-urban areas [1]. As per the estimates of World Health Organization, every year, 50 million people across the world are infected by dengue and about 2/5 of the world population (2.5 billion people) are at risk from this dreadful disease, which spreads over about 100 countries. Dengue is also known as break-bone fever, as it causes extreme body pain, especially in the joints of bones. Though some preventive measures have been suggested to cure dengue, so far there is no effective medicine and vaccine approved for the dengue virus [1]. Developing a safe and effective antiviral drug is difficult, because viruses use the host's cells to replicate. This makes it difficult to eradicate the virus without harming the host organism's cells [2].

Unlike swine flu, avian flu and SARS, the dengue fever is not new to the world. It has a long history dates back to 265-420 AD associated with the Chinese medical encyclopedia of the Jin Dynasty [3,4]. Therefore, people from the historical past have been trying to develop some measures or medical formulation to cure dengue. Historically, the plant material has been a favorite and major ingredient discovered by people across the world to cure diseases. As a result so far about 52000 plant species are acclaimed to have medicinal properties [5], of these about 6500 are known to grow in India [6]. The recent epidemic of dengue in India, especially in New Delhi, has made the people to experiment on the plant material for curing this dreadful disease. Only supportive therapy is in practice in India because there is no specific drug to cure dengue fever. The present study aims to understand the effects of papaya (*Carica papaya* L.) leaf juice as a possible herbal medicine to cure dengue fever.

Figure 1: Papaya - Photo by Chandra Prakash Kala.

Figure 2: Crushing of papaya leaves - Photo by Chandra Prakash Kala.

Material and Methods

Traditionally, in society there is a belief that juice of papaya leaves is useful for the treatment of dengue fever. As per this belief, the people collect fresh leaves of papaya and extract their juice by crushing and squeezing (Figure 1, 2). Only the leafy part is collected not the sap and stalk. The extracted juice is filtered through a clean cotton cloth or filter to remove the uncrushed hard fibers or pieces of leaves (Figure 3). One leaf of papaya gives about one tablespoon of juice, which is quite bitter in taste. Two tablespoons of papaya leaf juice are given to dengue patient three times per day after every 6 hours interval. The leaf is not boiled and cooked, as it is believed that rinsing with hot water and after boiling the leaf loses its strength.

The dengue patients are identified based on some signs and symptoms as mentioned in the literature such as high fever with headache, severe muscle pain, joint pain and red rashes on the body including itching and allergy. The low platelets in blood (<150000) is also attributed to the dengue fever in the dengue infected areas. Therefore, improvement in platelet counts after therapy by application of herbal medicinal formulation, such as papaya leaf juice can be

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Figure 3: Juice extracted from papaya leaves - Photo by Chandra Prakash Kala.

No of Patient	Age of patient	Platelets before using papaya leaf juice	Platelets after using papaya leaf juice (After 24 hrs)
1	38 yrs	28000	36000
2	52 yrs	80000	91000
3	41 yrs	143000	151000
4	23 yrs	46000	55000
5	19 yrs	67000	78000

Table 1: Effects of papaya leaf juice in improving the blood platelets.

considered the positive effects of therapy on the dengue fever. Platelets, along with plasma and red cells form a major proportion of human blood. Platelets are vital components in blood, as they provide both structural and molecular functions in blood clotting [7].

The dengue infected people in national capital and other cities had undergone the regular examination for blood platelet counts during the infection of dengue in 2010 in order to monitor the severity of dengue fever. For the treatment of dengue many dengue patients had papaya leaf juice as per the traditional beliefs. A total of 5 such patients of dengue were interviewed for understanding the effects of papaya leaf juice on dengue fever. Their blood test reports on the platelets counts were also examined before and after consuming papaya leaf juice.

Results

The observations made during the study were quite interesting. Papaya leaf juice was effective in curing the dengue fever. As per the medical report of patients the number of platelets had increased within the prescribed time (24 hrs) of drinking leaf juice of papaya in all 5 patients of dengue. The increase in number of platelets varied from patients to patients that ranged from 8000 to 11000 (Table 1). The dengue patients had reiterated that there was a significant improvement in their health within 24 hrs of taking papaya leaf juice.

The traditional belief of curing dengue by papaya's leaf juice had spread quickly in the highly infected city of New Delhi and suddenly there was a high demand of papaya leaves. A family in Prem Nagar area of New Delhi having 4 trees of papaya when asked pointed out that they were visited by approx. 110 people within 4 months from July to October 2010 for the papaya leaves to cure dengue fever.

Besides leaf juice of papaya, there are reports indicating that the extract of some other flowering plant species, such as *Vitex negundo*, *Azadirachta indica* and *Artemisia annua* contains properties to work against the viruses [8-15]. Some lower plant species including lichens and algae exhibit inhibitory activity against some type of viruses [16-18]. It is suggested that all such plant species need to be scrutinized for their antiviral properties.

Conclusion

Preventive measures should be taken before spreading of any kind of disease including dengue fever. The dengue mosquitoes breed in relatively fresh water, lives close to human habitations and bites during the day and one should be cautious accordingly. In case of the low success of preventive measures, the curative measure as suggested in this study is quite useful for the treatment of dengue fever. The juice of papaya leaves is an effective herbal therapy for curing the dengue fever.

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