
EFFECTS OF CARICA PAPAYA ON DENGUE: A REVIEW

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ABSTRACT:

Carica papaya (CP) extract is becoming popular as an unlicensed herbal treatment intended to hasten dengue infection recovery, largely based on results that could raise the number of platelets. Inclusion requirements were fulfilled in nine studies (India-6, Pakistan-1, Indonesia-1, Malaysia-1). Seven tests found an improvement in platelet count in patients receiving CP extract, although no substantial difference between the two groups was found in one study and no clear relation was possible in the rest of the sample. There have not been records of significant adverse events. The period of hospital stay can be shortened by CP extract (mean gap of 1.98 days, 95% confidence interval of 1.83 to 2.12, 3 trials, 580 subjects, poor quality evidence) and contribute to increase in mean platelet counts between the first and fifth days of treatment (mean difference 35.45, 95 percent confidence interval 23.74 to 47.15, 3 studies, 129 participants, low quality evidence). There was no information present concerning such health results. This systematic review and meta-analysis seeks to objectively examine the proof of the effectiveness and safety of CP extract in the treatment of dengue infection in controlled clinical trials. In the lack of more rigorous markers of favourable clinical outcome, the clinical benefit of increase in platelet count or early discharge remains unknown. Present evidence to report on the position of CP extract in dengue is inadequate. There is a need for more well-designed clinical trials with well-defined success measures investigating the impact of CP on platelet counts, plasma leakage, other severe dengue symptoms, and mortality.

KEYWORDS: *Carica Papaya, Dengue, Extract, Randomized, Treat, Vitamins, Healthcare.*

INTRODUCTION

Dengue is an arboviral contamination transmitted with the aid of mosquitoes of the *Aedes* species. It is a disease with worldwide implications, resulting in full-size morbidity and mortality. Transmission happens in as a minimum 128 countries, and almost four billion humans are at risk. Records from the global Burden of disorder have a look at 2013 confirmed that the occurrence of dengue has markedly accelerated over the years, from 8.3 million instances in 1990 to a magnificent 58.4 million cases in 2013. The yearly average range of deaths due to dengue from 1990 to 2013 turned into anticipated at 9221. It's far presently

estimated that round 390 million dengue infections arise yearly, and that ninety six million of those result in medical sickness. South and South East Asia account for a first-rate share of the worldwide burden of dengue, with an expected mortality of 8.49 according to million population in 2013.

Dengue fever occurs due to contamination by using 4 awesome serotypes (DEN 1–4), and has diverse manifestations, starting from an straight forward febrile illness to critical sickness with organ dysfunction. Within the more excessive bureaucracy, plasma leakage offers rise to surprise and organ failure; existence threatening haemorrhage can also arise. Uncommon organ manifestations of dengue also are increasingly more mentioned, and incorporate the multiplied dengue syndrome. Mortality in dengue is most often because of shock, intractable multi-organ dysfunction, or uncontrollable bleeding. Immoderate fluid therapy is likewise acknowledged to make a contribution to mortality in sufferers with plasma leakage, due to the development of pulmonary oedema for the duration of the recuperation section.

Regardless of many years of good sized studies, precise healing modalities for dengue remain in their infancy. Immunosuppression, within the shape of corticosteroids or immunoglobulins, has not shown benefit. Several antiviral sellers and other host immune modulators are inside the early degrees of medical evaluation, and could not be to be had for scientific use within the foreseeable future. Numerous dengue vaccines are in improvement, and some already licensed for use, but these do not show convincing evidence of gain throughout all age groups, and do no longer confer immunity for all serotypes. The mainstay of clinical remedy of dengue is careful fluid management, with near monitoring and supportive care.

The dearth of powerful healing interventions for dengue has created hobby in opportunity healing procedures, i.e., natural and natural remedies for the ailment. Carica papaya (CP) leaf extract has recently gained interest in the treatment of dengue, especially in social media networks, and has shown increasing off-label use within the ailment. Whilst the simple extract of papaya leaves is typically used, there are a few business arrangements containing papaya leaf extract available in sure nations. CP is a ubiquitous flowering plant within the tropics, with an fit to be eaten fruit. At first native to Mexico and South US, it has flourished after introduction to South and South-East Asian nations. The leaves of the plant include several biologically energetic compounds, including papain, caricain, chymopapain, and glycine endopeptidase. Those compounds were shown to improve acidic ph, and cause degradation of pepsin. CP also contains lipase that is bound to the water-insoluble thing of papain. CP leaf extract has been presupposed to have anti-viral and haematological consequences which would possibly have pathophysiological implications for its use as treatment for dengue, including anti-oxidant and loose radical scavenging houses, and advanced red cellular membrane stabilization. The flavonoids of CP leaf extract were shown to inhibit a protease worried in viral assembly.

All through recent epidemics, sufferers have resorted to the off-label use of CP extract in dengue infection. But extreme debate continues regarding the healing efficacy and safety profile of this treatment. This systematic overview and meta-evaluation aims to critically examine the available scientific evidence from prospective controlled clinical trials on the efficacy and protection of CP extract inside the treatment of dengue contamination. A summary of all research is furnished in desk 1. In quick, all research however 3 have been conducted in India (Pakistan-1, Indonesia-1, Malaysia-All studies were referred to as randomized however seven did not specify the method of random allocation. All of the research recruited teens or adults (age variety 15–60 years) except one that protected handiest paediatric patients (age range 1–12 years). Research have been double blind and one become unmarried blind.

Study	Methods	Participants	Interventions	Outcomes	Adverse Event
[1]	Randomized single blind placebo controlled study	Patients > 14 years with DF or DHF with platelet < 50×10^9 (19 intervention, 20 control)	CP leaf extract syrup 5 ml twice a day for four days	Mean platelet count increments after 2–4 days were not statistically significant between the two groups. Mean platelet increment between day 5 (4 days after intervention) and baseline was 106 ± 69.16 in the intervention group and 82.3 ± 37.28 in the control group, and not statistically significant.	No significant adverse effects with CP
[2]	Randomized open-label controlled study	Patients 15–55 years with suspected DF (40 in each arm)	CP leaf extract capsule 1100 mg three times a day	Platelet counts rise more rapid in the intervention group ($p < 0.05$). Haematocrit changes not significant. Period of hospitalization shortened with treatment. Intervention group 3.48 ± 0.6 days, Control group 5.38 ± 0.67 days ($p < 0.05$).	Not reported
[3]	Randomized open label controlled study	Patients 18–60 years with DF or DHF with platelet < 100×10^9 (145 in each arm)	Fresh juice from 50 g of CP leaves daily for three days	Mean difference in platelet count at 8 h and after 40 h: intervention group – 16.764 (– 24.566, – 8.964), $p < 0.001$, control group – 7.703 (– 14.055, 1.351) ($p = 0.018$).	Not reported

[4]	Randomized open label controlled study	Patients 18–60 years with DF or DHF I, II with platelet count 30 – 100×10^9 (30 in each arm)	CP leaf extract tablets 1100 mg three times a day for five days	Mean platelet count after five days: intervention group $110.71 + 30.57$, control group $75.63 + 22.49$. Mean difference in platelet count from day 1 to day 5: $39.89 + 38.50$ in the intervention group, $0.71 + 24.76$ in the control group, $p = 0003$.	Not reported
[5]	Randomized, open label controlled study	Patients 18–60 years with DF or DHF I, II with platelet count $30-100 \times 10^9$ (14 intervention group, 16 control group)	CP leaf extract tablets 1100 mg three times a day for five days	Mean platelet count on day 5: intervention group 104.71 ± 30.57 , control group 66.63 ± 22.49 . Mean difference in platelet count from day 1 to day 5: intervention group 39.92 ± 38.51 , control group 00.69 ± 24.75 , $p = 0003$.	Not reported
[6]	Randomized controlled study	Patients > 16 years with DF and platelet count $< 150 \times 10^9$ (200 in each group)	CP leaf extract capsule 500 mg once daily for five days	Mean platelet count was higher in the intervention group from 3rd to 5th day. Average hospitalization period: intervention group 3.65 ± 0.97 days, control group 5.42 ± 0.98 , $p < 0.01$. Platelet transfusion requirements: intervention group 55/200, control group 93/200.	No side effects reported with CP
[7]	Randomized double blind placebo controlled study	Patients 18–60 years with DF or DHF I, II with platelet count $30-100 \times 10^9$ (150 each group)	CP leaf extract tablets 1100 mg three times a day for five days	Median platelet count on day three: intervention group 88.89, control group 55.63; on day four 102.57 and 64.58; on day five 155.88 and 70.52, respectively. White cell count also increased in the intervention group. No difference in haematocrit.	Nausea, vomiting

[8]	Randomized double blind placebo controlled study	Adult patients with DF (50 each)	CP leaf extract capsules 500 mg three times a day for five days	<p>Average platelet count was higher in the intervention group on day 3, 4 and 5 ($p < 0.01$).</p> <p>Platelet transfusion requirements: intervention group 28%, control group 46% ($p < 0.01$). White cell count increased in the intervention group. Haematocrit did not show significant difference. Duration of hospitalization: intervention group 3.45 ± 0.98, control group 6.42 ± 0.98 ($p < 0.01$).</p>	Nausea, vomiting
	Randomized open label controlled study	Paediatric patients (1–12 years) with DF or DHF grades I or II with platelet count $30-100 \times 10^9$ (145 intervention, 140 control)	CP leaf extract syrup 275 mg three times a day (1–5 years age) or 550 mg three times a day (> 5 years)	Increase in platelet count on day 03, 04 and 05 were statistically significant ($p < 0.05$). Increase in red cell count was statistically significant on day 05 and white cell count statistically significant on day 3, 4 and 5.	Nausea in two patients

CONCLUSIONS

There is scant current scientific data on the positive benefits of *Carica papaya* extract in the treatment of dengue fever, based on a few low to moderate-quality studies. Improvements in platelet counts and reductions in hospital stays have been shown, but major statistical limitations make it impossible to make concrete guidelines in many of the trials. Based on current data available, systematic use of CP extract for treating dengue cannot be suggested.

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