

## Papaya leaves juice as an alternative treatment for dengue fever

Dear Editor,

Dengue Fever (DF), a type of viral disease, is now almost an endemic to certain tropical and subtropical regions of the world. (Kadir *et al.*, 2013; Senthilvel *et al.*, 2013; Pigili *et al.*, 2014; Abrao *et al.*, 2015). According to Dengue Situation Update (Number 474) by World Health Organization, as on September 12, 2015, there were 85,488 dengue cases with 234 deaths reported in Malaysia for the year 2015. This is 21.5% higher compared to the same period in 2014 which is 70,337 cases. Dengue fever is transmitted by female *Aedes aegypti* mosquito carrying Flavivirus. The person who has been infected with dengue fever could be re-infected because the virus carries four different serotypes (Ahmad *et al.*, 2011; Kadir *et al.*, 2013). After being bitten, it would take three to fourteen days for early manifestation of symptoms such as fever, headache, rash, nausea, joint and musculoskeletal pain. If left untreated, it can cause blood plasma and vessel leakage, dropping of platelet count leading to dengue haemorrhagic fever (DHF) (Kadir *et al.*, 2013; Pigili *et al.*, 2014). Further severe development of DHF will lead to dengue shock syndrome (DSS) which is associated with high mortality rate (Kadir *et al.*, 2013; Sarala *et al.*, 2014). Currently the newly available dengue vaccine is still not routinely administered to the general public. Normally, oral and intravenous fluids administration and antipyretics is recommended to control blood circulation and fever (Ahmad *et al.*, 2011; Kadir *et al.*, 2013; Pigili *et al.*, 2014).

Traditionally, medicinal plant has been often used to treat numerous diseases including DF (Kadir *et al.*, 2013; Sheikh *et al.*, 2014). For centuries *Carica papaya* leaves obtained from papaya tree have been used in the folk medicine to combat DF, because it is considered to be an effective, safe and cheap remedy (Dharmarathna *et al.*, 2013; Subenthiran *et al.*, 2013). Many studies have revealed that *C. papaya* leaves has a lot of benefits such as anti-inflammatory agent, antitumor, antioxidant, nephroprotective, hepatoprotective, hypoglycemic, hypolipidaemic, anti-sickling properties in sickle cell disease and act as a vermifuge (Patil *et al.*, 2013; Subenthiran *et al.*, 2013; Sarala *et*

*al.*, 2014; Siddique *et al.*, 2014). Due to its' ability to exert therapeutics effects on human; numerous studies on *C. papaya* leaf have been conducted in order to evaluate its properties, safety and toxicity in human. The most prominent therapeutics effect of this herb is its ability to increase platelet count in patient with thrombocytopenia in DF. An open labeled randomized controlled trial conducted in a hospital located in Malaysia to investigate the effect of *C. papaya* leaves juice to increase the platelet count in patient with DF and DHF (Subenthiran *et al.*, 2013). A total of 229 patients were recruited (111 and 117 patients were from the interventional and control group respectively) whereby the experimental subject were given fresh juice from 50 grams of *C. papaya* leaves once daily, 15 minute after breakfast for 3 consecutive days. The findings has shown a significant increase in platelet count in the intervention group after 40 hours and 48 hours of treatment (Subenthiran *et al.*, 2013). Furthermore, in Karachi, Pakistan a case report showed that a medical student with symptom of DF was given 150mL of papaya leaf extract once daily for 5 consecutive days and a continuous rise in platelet by the end of the fifth day was recorded (Siddique *et al.*, 2014). Another study in Karachi, 50 mL of the extract papaya leaf was given to a taxi driver diagnosed with DF twice daily for 5 days; a steady increment in platelet count and white blood cell were also shown (Siddique *et al.*, 2014).

The occurrences claim the juice of papaya leaves in treating dengue's fever are mainly popularised via mass media or social media. In fact, there is no substantial scientific study to provide evidence that this juice can actually heal dengue fever. It is worth noting that some studies have shown that the papaya leaves juice did not contribute to platelet count increment in patients with DF. However it is still people's preference to use it to combat dengue fever since there is no exact medicine for it and in fact, there is no side effects are seen in a patient who consumes this juice. It can be considered safe because it does not affect any vital organs like kidney, heart and liver. However, it is still premature to recommend widely its use to all patients with DF as more concrete clinical findings are needed to support its use.

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