Effectiveness of plant-based products for treating dengue

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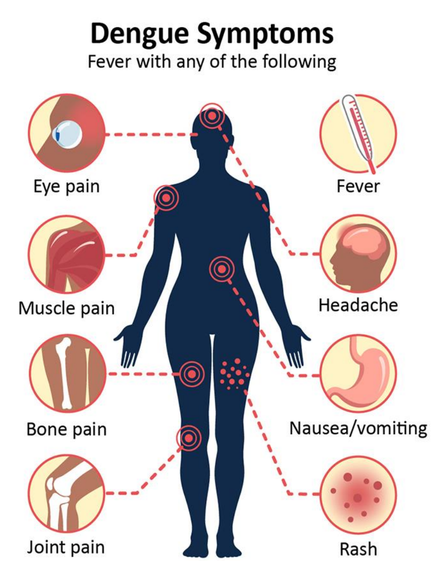
INTRODUCTION

- **What is Dengue:** Dengue is a disease caused by a virus spread by mosquitoes. It can make you feel very sick with high fever, headaches, and body aches.
- **How is Dengue Treated:** There's no specific medicine for dengue. Doctors usually recommend rest, drinking lots of fluids, and taking paracetamol for fever and pain. Avoid medicines like ibuprofen and aspirin because they can cause more bleeding.
- **Challenges in Treating Dengue**: Dengue is spreading fast, especially in warm places. Current treatments and vaccines aren't perfect, and many people still get very sick.
- **Need for Better Solutions**: We need better ways to fight dengue, including more effective medicines and vaccines. Controlling mosquitoes and improving healthcare are also important.
- **Future with Plant-Based Treatments:** Scientists are exploring plants for new treatments. Some plants, like papaya and certain herbs, show promise in helping dengue patients feel better and recover faster.

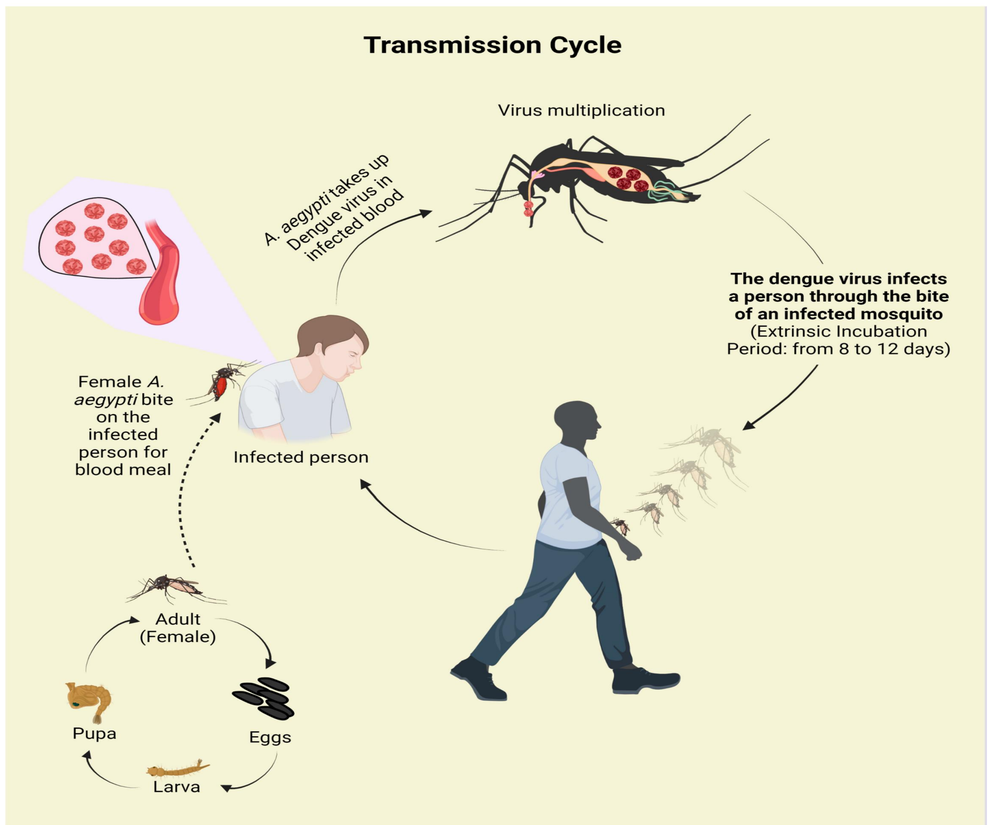
SYMPTOMS OF DENGUE

- **High Fever:** Sudden onset of high fever.
- **Severe Headache:** Intense pain, especially behind the eyes.
- **Body Aches:** Muscle, joint, and bone pain, often called "break-bone fever."
- **Rash:** Skin rash that can appear a few days after the fever starts.
- **Nausea and Vomiting:** Feeling sick to your stomach and vomiting

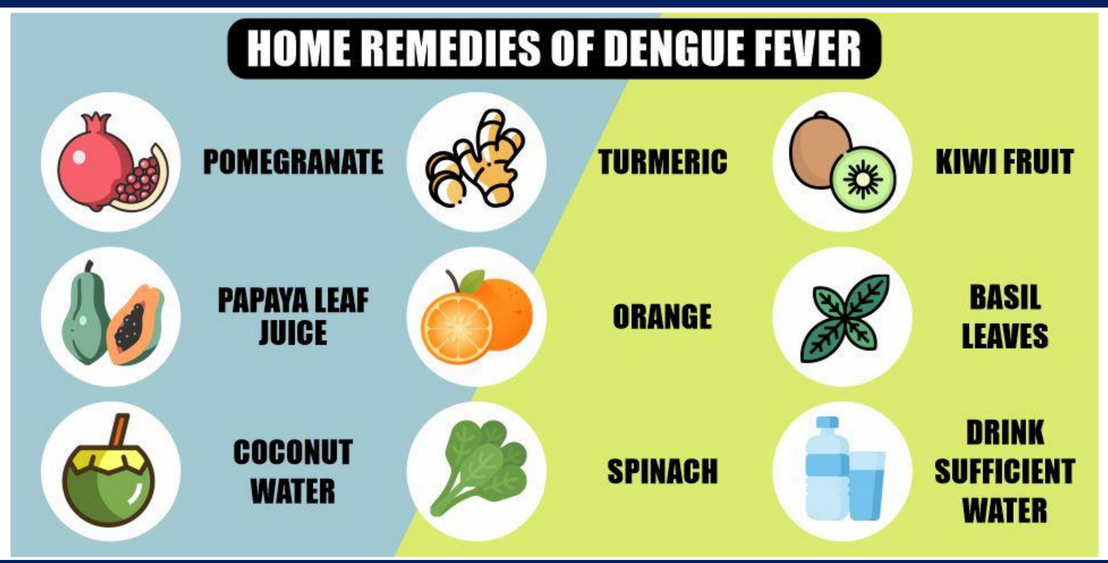


TRANSMISSION CYCLE

- **Infected Person:** A person with dengue virus in their blood is bitten by an Aedes mosquito.
- **Mosquito Becomes Infectious:** The virus multiplies inside the mosquito, making it capable of spreading the virus.
- **New Infections:** The infectious mosquito bites another person, transmitting the virus and continuing the cycle

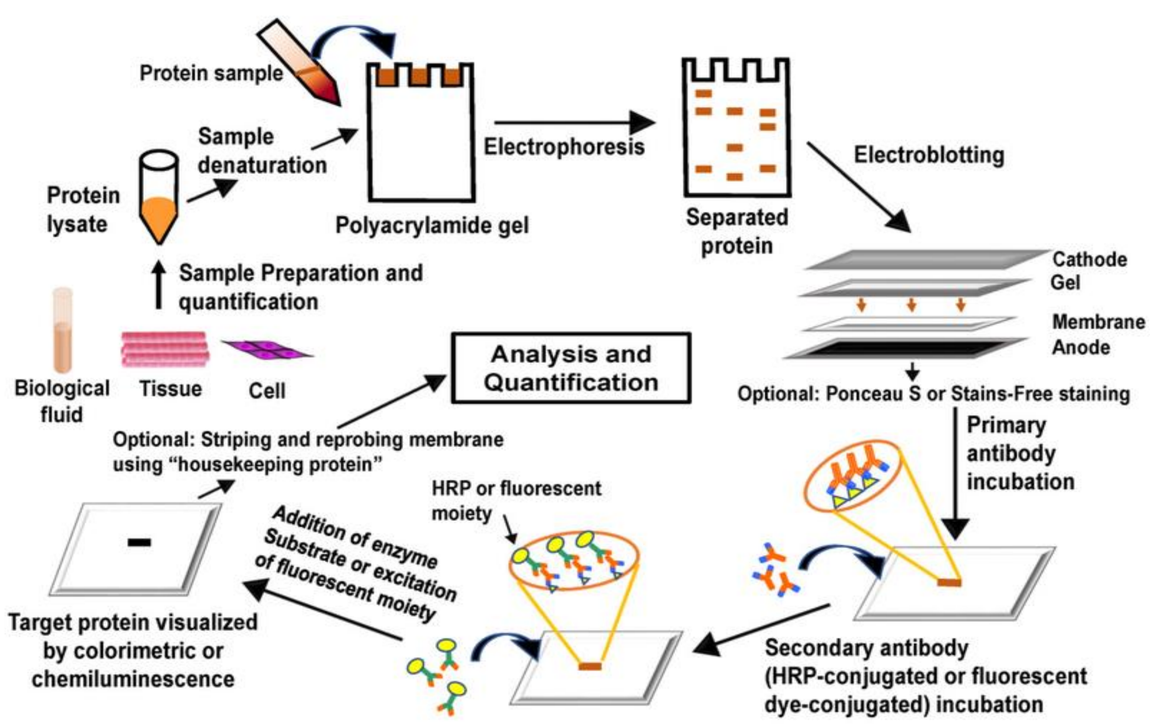


NATURAL PRODUCTS TREATMENT



AIM, METHODOLOGY AND PROCEDURE

- **Aim:** To check the effectiveness of novel drugs from natural sources against Dengue Infection
- **Materials:** Petri dishes, DMEM Cell culture media, humidified incubator at 37°C, supplemented with 5% CO2, Western Blot apparatus for anti-dengue protein studies, Plant derived natural products having anti-dengue activity.
- **Methods:** In this study, we will use the human cell line (HEK Cells) and treat them with natural products and check for efficacy against Dengue virus.
- **Experimental Procedure:**
  1. Growing human cells (HEK) and treatment with Quercetin and MTT assay for the drug quercetin.
  2. Expression of the dengue virus protease in E coli BL 21 bacterial cells and extraction of Protein after NiNTA purification.
  3. Binding analysis of protease-quercetin by fluorescence spectroscopy.
  4. SDS PAGE analysis for resolving the protein based on the size
  5. Transfer of protein from SDS Gel to Nitro Cellulose membrane to check for Protease activity in the presence of quercetin.
  6. Western Blot analysis using primary and secondary antibody to check for anti-dengue protein expression and Virus inhibitory analysis using the virus cell cultures.



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- **Conclusion:** Our findings will reveal the challenges associated with Dengue virus, helping us better understand how the infection works and its effects on the body
- **Applications:** The results can be used to educate doctors and people about use of nature friendly anti-dengue products from plant sources.