Abstract:

Inflammation is a natural biological reaction of the immune system to damaging stimuli such as pathogens, damaged cells, or irritants. NSAIDs can effectively reduce pain and swelling associated with inflammation. However, long-term use of NSAIDs can cause side effects such as gastric erosion, stomach ulcers, and in severe cases, hemorrhage. To treat this complications regarding synthetic anti-inflammatory medications, herbal medicines can be an important substitute to treat inflammation. *Carica papaya*, also referred as papaya, has anti-inflammatory effects, particularly in the leaves and seeds. Research has also shown that papaya leaf extracts can reduce inflammation in a variety of cells, including those involved in wound healing. Though few researches established the potential of *Carica papaya,* studies are still lacking in human and animal level. In this project, extract of *Carica papaya* by ultrasonication process in methanolic and petroleum ether solvent. Chemical tests of these two extracts have established the presence of various phytoconstituents like, Alkaloids, Glycosides etc. along with protein, gum, fixed oil etc. Insilico tests revealed phytochemicals like, Apigenin, Carpain, Citropen, Kaemferol etc. obtained from *Carica papaya* have anti-inflammatory property. In vitro tests performed by determining IC50 values of different concentrations of extract. We found IC50 value of *C.papaya* extract (0.198 mg/ml) is higher than the inhibition rate of reference drug(0.47 mg/ml), which indicates anti-inflammatory effect of the herbal extract. A gel formulation was prepared using gum tragacanth by known concentration of extract. Hence from all these results a potential anti-inflammatory treatment strategy can be designed in future with further researches.

Keywords: *C.papaya,* anti-inflammatory, IC50, gum tragacanth.