Comparison of extracts of *Citrus maxima* (Indian Pomelo) and *Citrus aurantium* (Bitter Orange) for antimicrobial andmosquitocidal activities

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Summary of the findings: Extracts of plants are known to have antimicrobial properties and these phytochemicals can be used for therapeutic treatments. An antimicrobial substance can kill or inhibit the growth of microorganism such as bacteria and fungi.Citrus fruit products are known to be potent antimicrobial agents against bacteria and fungi. Some of the prominent bacterial species like *Escherichia coli, Staphylococcus aureus*and*Klebsiella pneumonia* are the cause of various infections in humans.The antimicrobial activity can be used in treatment of infections as an alternative drug.

In the present investigation the antibacterial activities of the various extracts of *Citrus maxima* and *Citrus aurantium* were screened *in vitro*. The methanolic and aqueous extract of the fruit pulp of *Citrus maxima* exhibited antibacterial activity against *Escherichia coli, Staphylococcus aureus*and*Klebsiellapneumoniae.*

The aqueous extract of the pulp of *Citrus maxima* recorded the highest diameter of zone of inhibition of 27 mm against *Staphylococcus aureus* .The methanolic extracts of the leaf, seed, fruit peel and bark of *Citrus maxima* exhibited antibacterial activity against *Escherichia coli* and*Klebsiella*pneumonia but no zone of inhibition was noticed with *Staphylococcus aureus* . Except the aqueous pulp and seed extracts of *Citrus maxima* the extracts of leaf, peel and bark showed no zone of inhibition for all the three bacteria. The aqueous extracts of the peel, bark and leaf of *Citrus aurantium* did not show any anti bacterial activity while the pulp and seed extracts showed zone of inhibition . However, no

significant difference was observed in the zone of inhibition of the three microorganisms. It is noticed that the pulp extracts both aqueous and methanolic had the highest potential against the selected pathogenic bacteria.

Dengue is an infectious tropical disease caused by dengue virus. *Aedesaegypti* play a major role in transmission of Dengue. Synthetic chemicals and insecticides used for control of vectors cause irreversible damage to the ecosystem as they are non-degradable. Hence in the present study an attempt has been made to study the leaf extracts of *Citrus aurantium* and *Citrus maxima* against dengue vector mosquitoes. It has been found that the leaf extracts of *Citrus aurantium* is effective in killing 50% of the mosquitoes in the sample and the remaining mosquitoes showed repulsion. In future the leaf extracts of *Citrus aurantium* can be used in the production of formulations in an economical and harmless manner to prevent dengue virus infection.