

SCREENING OF PLANT EXTRACTS AND OILS AGAINST SOFT ROT BACTERIUM, *Pectobacterium carotovorum*

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ABSTRACT

Soft rot disease in vegetables is mainly caused by *Pectobacterium carotovorum*, which is one of the destructive pre- and post-harvest bacterial pathogens of vegetables. Post-harvest losses due to soft rot disease in vegetables vary between 15-30%. In the absence of effective eco-friendly bactericides, the present investigation was planned to screen out effective plant based antibacterial compounds against *P. carotovorum*. Fifty percent concentrations of methanol based crude extracts of medicinal plants such as *Gliricidia sepium*, *Calotropis gigantean*, *Ocimum* spp., *Thespesia populnea*, *Borassus flabellifer*, *Phyllanthus emblica*, *Terminalia chebula*, and *Tamarindus indica*, and edible oils such as castor, gingelly, mahua, cinnamon, neem, and clove were tested against the soft rot bacterium on onion, tomato and carrot using disk diffusion, well diffusion and poison food assays. Data on growth performance of *P. carotovorum* were collected and the percentage of inhibition was calculated. One-way ANOVA was performed using the SAS software. Duncan's Multiple Ranges Test (DMRT) was used to determine the least significant differences among the treatments at $P < 0.05$. Results show that significantly highest growth inhibition (100%) was recorded from the *T. indica* fruit pulp extract and castor oil applied treatments on carrot followed by *P. emblica* fruit extract (95.6%) and neem oil (95.6%). However, lower growth inhibition percentages were recorded in tomato and onion compared to carrot. In tomato and onion, the highest growth inhibition percentage was recorded from the *T. indica* fruit pulp extract (92%) and clove oil (78%), respectively. These results suggest that different plant extracts have different effects on the same pathogen when attacking different hosts. The studies on host influence on pathogenicity and active ingredients present in these plant-based extracts are in progress.

Keywords: Castor oil, *Pectobacterium carotovorum*, soft rot, *Tamarindus indica*