Inhibitory effects of essential oils of five medicinal plants on the causal agents of potato wilt and soft rot

ABSTRACT

Bacterial wilt and soft rot of potato are the main constraints to product world wide. Antibacterial activities of essential oils as natural inhibitors against plant bacterial diseases have been widely investigated. In the research, the antibacterial effects of the essential oils *Coriandrum sativum*, *Thymus sativum*, *Cuminum cyminum*, *Rosmarinus officinalis* and *Hibiscus sabdariffa* against bacterial wilt (*Pectobacterium carotovorum*), soft rot (*Ralstonia solanacearum*) and *Escherichia coli* using paper disk diffusion method and tested at the concentrations of 0, %5 , %10 , %25 , %50 , %75 , %100 (v/v). The minimum inhibitory concentration and minimum bactericidal concentration were determined by twofold broth dilution method. This essential oil has been sprayed on inoculated plants In greenhouse at concentration of %0.5. Duncan's multiple range test (MSTATC software)was used for comparison of means. The most inhibition zone, 34.8 mm and MIC, %5, were resulted from application of essential oils of *T. vulgaris*, followed by *Coriandrum sativum*. Essential oils of *Cuminum cyminum* and *Rosmarinus officinalis* placed in the next positions. No essential oil was extracted from *Hibiscus sabdariffa*. Thyme in the greenhouse experiments, prevented 65% from the disease progress in both tomato and potato plants. %65.

Keyword: Inhibition zon – *Pectobacterium carotovorum – Ralstonia solanacearum – Escherichia coli*

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