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BIO-CONTROL OF POTATO VIRUS Y INFECTED POTATO PLANT BY WATER EXTRACT AND CARRAGEENANES OF *CHONDRUS* *CRISPUS*

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ABSTRACT

This study was applied by water extract and carrageenanes of *Chondrus crispus* algae to protect potato plants against potato virus Y (PVY) disease under green house conditions. The potato seedlings inoculated with PVY, and treated with red algal aqueous extract (10, 20, 30%) and carrageenanes (1mg/ml), which were applied at three times. The disease severity and PVY concentration were reduced in the treated plant. Potato virus Y caused a significant increase in the levels of proline, total phenolic compounds, phenylalanine ammonia lyase (PAL) activity of potato leaves and amylase activity of resultant tubers by about 17%, 26%, 28% and 48% respectively, while, it led to a significant decrease in starch concentration by about 35% than plants control. On the other hand, the foliar spraying both algal extract and carrageenan were improved of infected plant growth related to significantly increased in proline, phenols, PAL, amylase activity and starch concentration either in pre or post PVY inoculation. The enhancement of plant growth was associated with restriction of virus concentration as proved by Enzyme-Linked Immune Sorbent Assay (ELISA). The results indicated that the use of carrageenanes (1mg/ml) and highest concentrations of red algal extract (20 % and 30 %) induce systemic resistance provide an efficient tool, as antiviral agent to manage potato virus Y in potato plants.

Key words: Carrageenan, Enzyme-Linked Immunosorbent Assay and potato, Potato Virus Y