Journal

J. Biol. Chem. Environ. Sci., 2018, Vol. 13(1): 1-15
http://biochenv.blogspot.com.eg/

IMPROVED QUALITY OF VIRAL INFECTED POTATO PLANTS CULTIVATED IN INOCULATED SOILWITH PLANT GROWTH-PROMOTING BACTERIA

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ABSTRACT

Potato virusY (PVY) causes severe losses by substantially affecting tubers quality and reducing yield. The current study aims to Improve quality of infected potato plants via soil inoculation with Plant Growth-Promoting Bacteria (PGPB) .Two pot experiments were conducted under greenhouse during two successive seasons 2016/2017 in a Virology Greenhouse, Fac. of Agric, Ain shams Univ. Egypt . PGPR was isolated and identified from soil under potato crop . PGPR was inoculated in Soil and cultivated with healthy potato tubers cv spounta . PVY was mechanically inoculated into potato plants .The Results were recorded at 2017 season confirmed the results in season 2016 .The results clearly indicated that PGPR inoculation in soil increased significantly growth of potato plants . PVY monitoring was detected by severe mosaic, leaf narrow and necrosis confirmed by DAS-ELISA . The impact potency of PGPR on growth of PVY infected potato plants were positive significantly under greenhouse condition due to reduction of PVY infectivity, disease severity, virus concentration and improved plant growth compared to non-treated ones. Concerning chemical contents related to systemic resistance were detected. It was found that, Proline, SA contents, Chlorophyll a ; b and carotenoids , expressed proteins of antiviral proteins and PO and PPO were significant increased in PGPR application of PVY infected related non treated ones.

Keywords: PVY, PGPB, Potato plant, Potato viruses, SAR.