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EFFECT OF HUMIC ACID AND NPK FERTILIZATION ON SEVERITY OF COMMON BEAN RUST AND INFESTATION WITH SOME INSECT PESTS

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ABSTRACT

The effect of humic acid (HA) and different rates of NPK fertilizers on the rust disease severity, *Uromyces appendiculatus* and population density of certain insect pests, aphids (mainly *Aphis gossypii*, *Myzus persicae* and *Aphis craccivora*), *Thrips tabaci* and *Bemisia tabaci* were studied on two common bean cultivars, *Phaseolus vulgaris* (Bronco and Nepraska) during 2013 and 2014 was studied in Qaliubiya Governorate. Results revealed that disease severity (DS) was higher in 2014 than 2013. On the contrary, the highest infestation of three studied insect pests were higher in 2013 than 2014. Bronco cv. was more susceptible to insect pests and rust disease than Nebraska cv. during the two studied years. The tested treatment Humic acid + 100% NPK followed by Humic acid + 75% NPK gave the highest percent of rust disease severity and heaviest infestation of the three studied insects while, the treatment of Humic acid + 50% NPK showed the lowest rust disease severity and insect pests population in the two common bean cultivars. Total and free phenols & chlorophyll were affected insignificantly by applying HA and NPK fertilizer compared with control treatment, as it increased by increasing rate of NPK fertilizer. The three studied insect pests were affected insignificantly negative with total and free phenols and insignificantly positive with chlorophyll on the other hand, rust disease severity correlated significantly negative with total and free phenols & chlorophyll in the two studied cultivars.

Key words: aphids, *Bemisia tabaci*, Humic acid, NPK, *Phaseolus vulgaris*, Phytochemical components, rust disease severity, *Uromyces appendiculatus*, *Thrips tabaci*.