Investigating the effect of Arbuscular Mycorrhizal Fungi(Glomus etonicatum) and air pollutants on growth parameters of Maize(Zea mays L.)

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Abstract:

In order to investigate the effect of Glomus etonicatum and air pollutants and acidic rain on growth parameters of maize plants(Zea mays L.), a completely randomized experiment with ten replicantions was conducted from February 2016 to April 2017. Experimental treatments included four categories containing the plants treated by Mycorrhiza Fungus irrigation by acidic rains, plants treated by Mycorrhiza Fungus irrigation by control water with (PH=7), witnessing plants irrigation by acidic rain and witnessing plants irrigation by control water.

Results from analysis of variance revealved that the effect of mycorrhizal inoculation on chlorophyll, protein and carotenoid content of leaves, plant height, leaf dry wt, leaf fresh wt, root fresh wt, fruit number and leaf number and surface, were significant ($p<0.05$). Mycorrhizal Inoculation enhanced all parameters significantly in comparison to the witnessing plants and the highest value for these traits obtained by the plants inoculated with Mycorrhiza irrigation by control water and the least obtained in witnessing plants irrigation by acidic rain water. Furthermore, the research revealed that the amount of these parameters in plants inoculated with Mycorrhiza irrigation by acidic rain, is significantly more than witnessing plants irrigation by control water. In general inoculation by Mycorrhizal Fungi in addition to enhancing growth parameters can enhance the photosynthesis and production of oxygen in maize even under acidic rain circumstances and air polluted environments, compared to non-mycorrhizal plants in regular circumstances.

Key Words: Mycorrhiza - Maize - Air pollutants - Acidic rain - Chlorophyll - Protein - Carotenoid - Plants Growth

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