

عنوان مقاله:

Arbuscular Mycorrhizal induces Polyphenols Content of Lemon balm in Pathogen Stress

محل انتشار:

بیست و یکمین کُنگره ملی و نهمین کنگره بین المللی زیست شناسی ایران (سال: 1399)

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خلاصه مقاله:

Fusarium culmorum, a ubiguitous pathogen, is one of the growth limiting factors in plants. Such as F. culmorum is the causal agent of foot and root rot diseases in lemon balm (Melissa officinalis L.). Lemon balm is a medicinal herb in the Lamiaceae family that can form a successful symbiosis with arbuscular mycorrhizal (AM). The most medicinal properties of this plant are due to presence of polyphenolic compounds, such as rosmarinic acid (RA). Due to susceptibility of M. officinalis to F. culmorum and potential of this species to associate with AM, the present study examined the effect of mycorrhizal on growth and phenolic content in M. officinalis, under pathogen stress. The mycorrhizal treatments were included plants treated with Glomus mosseae, G. intraradices and G. mosseae + G. intraradices inoculums. Leaves of IYo-day-old plants were sprayed with pathogen suspension (1oa conidia). Fresh weights of shoot and root and the percentage of disease incidence (PDI) were estimated "• days after stress. The total contents of phenols, flavonoids, anthocyanins and phenolic acids were measured using spectrophotometric method. The concentration of RA was also determined by HPLC technique. Pathogen stress decreased fresh weights of shoot (Y.oY g) and root (F.FY g) and PDI was \$5.5Y% in lemon balm. The highest growth parameters and the lowest PDI were observed in plants inoculated with G. mosseae. Under pathogen stress, the maximum of total phenols (F1.AF mg GAE/g Dw), flavonoids (ιδ.λΨ mg QE/g Dw), anthocyanins (ι۴۶.Υ٩ μM/g Fw), phenolic acids (ΨΥ.ΥΨ mg RAE/g Dw) and RA (F.F. mg RA/g Dw) were found in plants treated with G. mosseae. Mycorrhizal inoculation (especially G. mosseae) improved growth and nutritional and pharmaceutical properties of M. officinalis, under fusarium stress. Indeed, the potential of AM fungus in induction of polyphenolic compounds content could increase the resistance of M. .officinalis to disease

کلمات کلیدی:

Melissa officinalis L., Symbiosis, Disease, Growth, Rosmarinic acid

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