

عنوان مقاله:

Allelopathy and Anti-mitotic Effects of Cuscuta campestris and Cuscuta monogyna Extracts on Plant Cell Division

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خلاصه مقاله:

Some natural compounds of plants including phenols and alkaloids induce mitosis depressive that are blocked cell division. Field dodder (*Cuscuta campestris* Yunck.) and eastern dodder (*Cuscuta monogyna* Vahl.) are the most widespread obligatory parasitic species. In the present study, end of summer ۲۰۱۵, field dodder and eastern dodder are collected from Alhagi maurorum Medik. host and Vine (*Vitis sylvestris* C.C.Gmel.) host respectively from Markazi province of Iran and identified by department of botany of Islamic Azad University of Saveh. The aerial parts of dodders were used for aqueous extract. Dodders alkaloid and poly phenol were visualized by TLC and Dragendorff (for alkaloid) and ferric salt (for poly phenol) reagents. Total phenols and alkaloid were measured by using the calibration and spectrophotometry methods. Root length and roots tip meristem model of onion bulbs and barley seedlings were utilized to allelopathy and antimitotic effects of dodders aqueous extracts. Standard cytotoxic λ -Hydroxyquinoline served as controls. The bulbs and barley seedlings were treated at various concentrations: ۰.۰۵, ۰.۱ and ۰.۲ mgml^{-۱} (dw) of and aqueous extract of dodders and λ -Hydroxyquinoline for ۶ and ۱۲ h. The inhibitory effect of dodders extract were evaluated on the growth and mitotic activity (Mitotic index) of barley seedlings and onion root meristems and the effect was compared with standard λ -Hydroxyquinoline. The One Way ANOVA test was used for statistical analysis. The poly phenols of field dodder was condensed tannins (include flavonoids) but for eastern dodder hydrolysable tannins. Like λ -Hydroxyquinoline, both field and eastern dodders extracts significantly inhibited the growth of roots and mitotic activity in incubation time and dose-dependent manner. However, *C. campestris* extract was more allelopathy and antimitotic potent in this regard and produced root decay and mitosis arrest. The extract of dodders had inhibitory and mitosis depressive effect on root tip meristem cells. In the present study we found, the dodders aqueous extracts can be used to produce desirable effects as it pertains to chromosome condensation and spread, and though the roles of these chemicals in spindle fiber inhibition have been elucidated, as λ -Hydroxyquinoline.

کلمات کلیدی:

Field dodder, Eastern dodder, Meristem, λ -Hydroxyquinoline, Onion, Barely

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