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(22nd SPPS Meeting)

9-12 JUNE 2018
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Serbian Plant Physiology Society

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PROGRAMME

bolic needs, they are able to sustain growth for several days and up to 20 cm until they successfully attach to a host plant. The aim of the present study was to explore the effect of various salinity levels on the germination properties, hydrolytic and antioxidant enzymes and growth in host absence of *Cuscuta campestris* in comparison to its non-parasitic relative, *Ipomoea purpurea*. Unlike the non-parasitic plant, which was not significantly affected up to 100 mM NaCl, germination percentage of *Cuscuta* seeds was overall lower and further decreased by salinity. Growth ability before attachment to host was also impeded. While both α-amylases and proteases were involved in *Ipomoea* germination and affected by salinity, in *Cuscuta protease* activity was hardly detectable. The parasite proved also to be less effective in L-proline accumulation and antioxidant response. *Cuscuta* was shown to be much more sensitive to salinity at germination and early growth stage, although previous findings proved it was successful in host attachment and parasitization at similar NaCl concentrations.

Keywords: germination, parasitic plant, salinity

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Non-invasive mapping of redox status in the aflatoxin-stressed maize and wheat seeds by 2D electron paramagnetic resonance imaging

PP2-17

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Cereal seeds are susceptible to infection by the opportunistic pathogen *Aspergillus flavus* that consequently leads to the contamination with aflatoxins. In this work, EPR imaging was applied for mapping redox state of the maize and wheat seeds contaminated with aflatoxin, through detection and localization of paramagnetic spin probes *in vivo*. The sample recordings were made in the L-frequency domain (1.1 GHz). The 3-Carbamoyl-2,2,5,5-tetramethyl-1-pyrrolidinyl-N-oxyl (3-Carbamoyl-PROXYL) spin probe was used for the estimation of changes in the redox state of the aflatoxin-stressed seeds. The EPR-active probes were reduced by cellular reducing agents forming EPR inactive species (hydroxylamines). The reduction rate, which among other factors depends on the redox status of the cell, provides information about the redox environment in the region of interest. A higher and more localized 3-Carbamoyl-PROXYL spin-active probe signal has been found in uncontaminated seeds than in aflatoxin-stressed seeds. Our results imply that aflatoxin contamination leads to the change in the seeds' redox status which provides useful information about its impact on seed metabolism.

Keywords: aflatoxins, seeds, redox status, electron paramagnetic resonance imaging

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