

Keywords:

... (H₂O₂), ... (H⁺) ...
... (D), ...
... (A) ... (D) ...
... H₂O₂ ... A ...
... H₂O₂ ...
... H₂O₂ ...
... A ...
... A ...
... H₂O₂ ...
... A ...
... *Zea mays* ...

Materials and Methods

Experimental setup and design

Zea mays ... (H₂O₂ 445) ...
... A - G ...
... 30% H₂O₂ ...
... 5 ... F-ED, A ...
... (6-8) ...
... (250) ... 100 ... 30% H₂O₂ ...
... 7 ...
... (5 ... 10) ...
... 10% H₂O₂ ...
... (E, C₃) ... 4 ...

Statistical analysis

Analysis of variance (ANOVA) was conducted using the software package SPSS (Statistical Package for the Social Sciences, version 20.0, SPSS Inc., Cary, NC, USA). The data were analyzed using a two-way ANOVA (treatment and time) with a significance level of 0.05. The means were compared using Tukey's post-hoc test. The results are presented as mean ± standard error (SE). The differences between treatments were considered significant at the 5% level ($P < 0.05$).

Results

Effect on malondialdehyde (MDA) content

The MDA content (mmol g⁻¹ fw) in leaves of the *Zea mays* was significantly affected by the concentration of arsenite and arsenate and the duration of treatment. The MDA content increased significantly ($P < 0.05$) in leaves of the *Zea mays* treated with 10 ppm arsenite (14 d AS[III]) and 10 ppm arsenate (14 d AS[V]) compared to the control (10 ppm). The MDA content was 51.69% (7 A) and 66.47% (14 A) respectively.

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Effect on the activities of some antioxidant enzymes

The activities of superoxide dismutase (SOD), catalase (CAT), and peroxidase (POD) were significantly affected by the concentration of arsenite and arsenate and the duration of treatment. The activities of SOD, CAT, and POD were significantly ($P < 0.05$) higher in leaves of the *Zea mays* treated with 10 ppm arsenite (14 d AS[III]) and 10 ppm arsenate (14 d AS[V]) compared to the control (10 ppm). The activities of SOD, CAT, and POD were 22.56% (14 A), 13% (14 A), and 10% (14 A) respectively.

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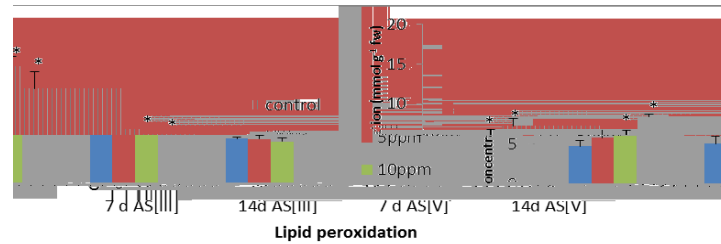


Figure 1: The MDA content (mmol g⁻¹ fw) in leaves of the *Zea mays*

51% (7 A E), 46% (14 A E) 18.6%
(14 A E) 46.7% (7 A E) . 10

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