

Accepted Manuscript

Supplemental selenium improves wheat grain yield and quality through alterations in biochemical processes under normal and water deficit conditions

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PII: S0308-8146(14)01885-8

DOI: <http://dx.doi.org/10.1016/j.foodchem.2014.11.147>

Reference: FOCH 16832

To appear in: *Food Chemistry*

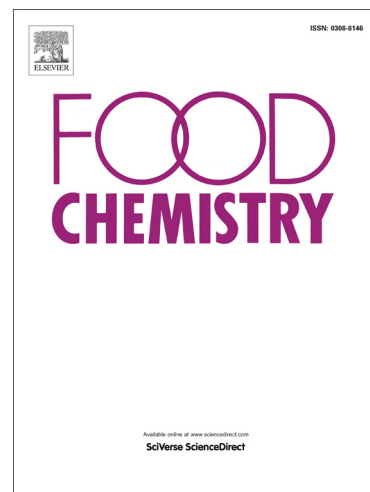
Received Date: 15 May 2014

Revised Date: 22 November 2014

Accepted Date: 26 November 2014

Please cite this article as: Nawaz, F., Ashraf, M.Y., Ahmad, R., Waraich, E.A., Shabbir, R.N., Bukhari, M.A., Supplemental selenium improves wheat grain yield and quality through alterations in biochemical processes under normal and water deficit conditions, *Food Chemistry* (2014), doi: <http://dx.doi.org/10.1016/j.foodchem.2014.11.147>

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**SUPPLEMENTAL SELENIUM IMPROVES WHEAT GRAIN YIELD
AND QUALITY THROUGH ALTERATIONS IN BIOCHEMICAL
PROCESSES UNDER NORMAL AND WATER DEFICIT
CONDITIONS**

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ABSTRACT

The paper mainly reported the effects of exogenous selenium (Se) supply (Se seed priming, Se fertigation and Se foliar spray) on physiological and antioxidant system of wheat aiming to clarify its effect on yield and nutritional quality of wheat under both normal and water deficit conditions. Water stress markedly decreased the grain Se, iron (Fe), phosphorous (P), zinc (Zn) and magnesium (Mg) contents. Supplemental Se (Na₂SeO₄) improved the yield and quality of water stressed plants due to enhancement in the production of osmoprotectants and increased activity of antioxidant enzymes. The foliar spray of Se was more effective than Se fertigation and Se seed treatment. To the best of our knowledge, this is the first elaborate study that involved various Se application methods to evaluate the efficiency of Se supply to plants that would be crucial to develop better understanding of Se translocation and accumulation within crop plants under drought stress.

Key words: Selenium, grain quality, antioxidant system, osmoprotectants, drought, wheat

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