Environmental Engineering and Management Journal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu

"Gheorghe Asachi" Technical University of Iasi, Romania

EFFECTS OF PHARMACEUTICALS AND PERSONAL CARE PRODUCTS (PPCPs) IN WATER ON WHEAT, *TRİTİCUM AESTİVUM* L.

Müjgan Elveren[1*], Etem Osma[2]

[1]*Vocational School of Health Services, Medical Services and Techniques, Erzincan Binali Yıldırım University, Erzincan, Turkey*
[2]*Department of Biology, Faculty of Sciences and Arts, Erzincan Binali Yıldırım University, Erzincan, Turkey*

Abstract

The present research attempts to fill data gaps in our knowledge of the potential negative impacts of PPCPs in water on plants. Ciprofloxacin, doxylamine succinate, and ibuprofen were used as model PPCPs in trials assessing their impact on wheat (*Triticum aestivum*). Seed germination and growth, electrolyte leakage, and several other plant physiology markers were used as endpoints to assess plant stress over time and at varying PPCPS exposure scenarios/concentrations. Nearly all of the physiological parameters and antioxidant enzyme activities measured were lowest in control (untreated) plants. It was also observed that PPCPs applied at different concentrations to soil increased H_2O_2, peroxidase (POX), catalase (CAT), and superoxide dismutase (SOD) in plants depending on the exposure concentration as well as time.

Key words: antioxidant enzymes, mineral elements, ppcps, pollution, wheat

Received: April, 2021; Revised final: November, 2021; Accepted: December, 2021

[*]Author to whom all correspondence should be addressed: e-mail: mujgan.elveren@erzincan.edu.tr; eosma@erzincan.edu.tr