*Environmental Engineering and Management Journal,* March 2004, Vol.3, No.1, 11-18
http://omicron.ch.tuiasi.ro/EEMJ/

*"Gh. Asachi" Technical University of Iasi, Romania*

# EFFECTS OF SOME INDUSTRIAL WASTES ON DIFFERENT PLANT SPECIES IN HYDROPONICS EXPERIMENTS

**Ruxandra Bodarlau[1], Carmen–Alice Teaca[1*], Valentin I. Popa[2]**

*[1] "Petru Poni" Institute of Macromolecular Chemistry, 41 A Aleea Gr. Ghica-Voda, Iasi, RO-700487, Romania*
*[,2] Technical University of Iasi, Faculty of Industrial Chemistry, Department of Pulp, Paper and Fibers, Bd. D.Mangeron 71 A, 700050, Iasi, Romania*

## Abstract

Significant stress factors for plants growth media are represented by nutrients (deficiency or excess), water, light, and heat, as well as by different industrial wastes. It is well known, for example, that heavy metals toxicity has a damaging action on plants' metabolism, affecting their normal growth process. In our study, the phytotoxicity of industrial wastes (thermo-power station ash, effluents from a pre-bleaching stage performed on a kraft cellulose- *chlorinated lignin products*-) was evaluated in hydroponics experiments, along with using of an excess of some metals (Zn and Cu). The sensitivity of three plant species, namely *Triticum aestivum L.* (wheat), *Secale cereale* (rye), and *Zea mays* (corn) were compared. These plant species were cultivated in hydroponics media, containing the industrial wastes and metal excess mentioned above. Physiological aspects, evidenced both by visual observation, and biometric measurement (plants average height), as well as the chemical composition (cellulose and lignin content) were examined.

*Keywords:* stress factors, industrial wastes, hydroponics media, biometric measurement, chemical components.

[*] Author to whom all correspondence should be addressed: Aleea Gr. Ghica-Voda no. 41 A, Iasi, tel.:0232/217454; fax:0232/211299; e-mail:cateaca@icmpp.tuiasi.ro