

P-0303-M ECOTOXICOLOGICAL STUDIES OF AQUATICS COMPARTMENTS CONTAMINATED WITH GLYPHOSATE AND AMPA USING DAPHNIA SIMILIS. Juliano de A.Andrade¹; Gustavo S.P.Granero²; Cláudio M.Jonsson²; Sonia Claudia do N.de Queiroz²; Isabel Cristina Sales Fontes Jardim¹; ¹Instituto de Química/UNICAMP, Campinas, Brazil; ²EMBRAPA MEIO AMBIENTE, Jaguariuna, Brazil

Glyphosate (N-(phosphonomethyl)glycine) is one of the most widely used herbicides in the world since it came to market in 1974. Because of its toxic nature glyphosate can cause a serious impact on the aquatic ecosystem and exert adverse effects on organisms associated with the environmental compartment. Much research has shown that glyphosate could be degraded by microorganisms and plants resulting in aminomethylphosphonic acid (AMPA), the main metabolite of glyphosate. In this paper, the acute toxicity of herbicides was evaluated through the exposure of the aquatic invertebrate *Daphnia similis* on systems contaminated with glyphosate and AMPA under different concentrations. During tests at controlled temperature (20±2) °C with brightness of 1000 lux, *Daphnia similis* cultures were kept in glass compartments containing 2 L of reconstituted water, at pH 7.8, conductivity 320 µS/cm, total hardness (CaCO₃) 110 mg/L and enriched with nutrients, trace elements and vitamins. The organisms were fed three times a week with a chloroficea *Selenastrum capricornutum* micro algae culture. The nominal concentrations of herbicide in the reaction systems was in the range from 0.01 µg/mL to 1000 µg/mL of active ingredient and confirmed by SPE-HPLC (for details see our other abstract). Ten individuals of *Daphnia similis* aged less than 24 h (neonate individuals) were placed in each container. The test samples remained 48 hours under the defined light and temperature conditions. At the end of the exposure period the organisms were evaluated for mobility. Exposure to effective media concentration (EC_{50-48h}) or the concentration of active ingredient that affects 50 percent of the test population were evaluated. The results show that AMPA is more toxic than glyphosate for the organism studied. Comparative studies show that glyphosate in the presence of AMPA is more toxic than the isolated compound, for the same concentration. The results indicate acute phase toxicity, with synergic effect of herbicides. The main differential of this paper compared with others published in literature is that this method is selective for glyphosate and AMPA. Moreover, with the new SPE-HPLC procedure used, it is possible to estimate, quickly and accurately, the concentration of each compound in any aqueous sample.