Toxicity Assays Applications for Assessing Acute Effects for Radiation Decomposition of Organics in Waters

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The knowledge for using electron bem irradiation for pollutants degradation is developing. Textile effluents and pharmaceuticals were the samples submitted to irradiations and to acute toxicity assays. An electron beam accelerator was the radiation source used for the treatment in batch experiments. Dafnids, rotifers and bacteria were applied for toxicity measurements. All the assays were performed at LEBA/IPEN (Environmental Biological Assays Laboratory). Doses required for decomposition of organics in water and related toxicity indicated that reduced colour of effluents with 2.5 kGy and 5 kGy. These doses were also suitable for toxic effects removal at pharmaceutical solutions (fluoxetine in sewage; propranolol and fluoxetine mixture and at fluoxetine and voltaren mixture). Part of real textile effluent (about 35% of samples) were very toxic (CE50 $< 5\%$) for daphnids and luminescence *Vibrio fischeri*. The surfactants contained at textile effluent were the most toxic compound. *Vibrio fischeri* luminescence was confirmed as one of the most sensitive assay, followed by *Ceriodaphnia dubia*, *Brachionus plicatis* rotifers and *Daphnia similis*.