



# In Vitro BioAssays : Current status and future application for water management

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**State of the science report**

**Global water**

**Research coalition**

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Life itself is based primarily upon organic chemistry, which has evolved over the earth's history. Indeed, many organic chemicals of natural origin are necessary for human existence, likewise, many natural organic chemicals are toxic. In fact, what often determines the difference between health benefit and health adversity is the dose and homeostatis (equilibrium) among biological agonists and antagonists (substances that initiate or inhibit a biological response, respectively). This leads to the obvious principle that not all chemical mixtures are toxic nor are all chemical mixtures beneficial. What determines benefit or adverse outcome depends on the chemical composition, dose (exposure) and duration.