The toxic influence of the anions of ionic liquids on inhibition the growth of a phytoplankton *Selenastrum capricornutum*

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ILs are novel organic salts with liquid range that have enormous potential for industrial use as "green" chemicals. Varying the cationic and anionic components can alter IL properties and toxicities. We examined the anion toxicity effects of ionic liquids using the alga. As a model ILs, 1-butyl-3-methyl imidazolium combined with several anions was used. These results were subsequently compared with those obtained of some common organic solvents that had been assessed previously using the same cell system. In this comparison, almost ionic liquids proved to be two to three orders of magnitude more harmful than organic solvents considered such as, dimethylformamide, methanol and 2-propanol. We also found *Hormetic* effects at a concentration below inhibitory concentrations. The EC50 values for the ionic liquids with different anions showed that toxicity of BF_4^- is highest than other anions. The anionic effect is important because the anion used in ionic liquids has a high influence on the industrial applicability of the substance. Therefore, further research should be done to better understand the influence of anions on the toxicity of ILs.