

Comparative study between the ecotoxicity of two solvents: An ionic liquid vs. a solvent from biomass

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In this study, we have compared the acute ecotoxicity of two solvents, with very different structure and origin, but sharing many physical-chemical properties, so they can be used for similar purposes; a well-known ionic liquid 1-butyl-3-methylimidazolium hexafluorophosphate ([BMIM][PF₆]) and a solvent partially derived from biomass, 3-bis(2,2,2-trifluoroethoxy)propan-2-ol (BTFIP). We have used three biomodels (*Vibrio fischeri*, *Daphnia magna* and *Danio rerio*). According to the results, ecotoxicity of [BMIM][PF₆] and BTFIP is quite similar in the simplest model *Vibrio fischeri*, while in *Daphnia magna* [BMIM][PF₆] is clearly more toxic. However, in *Danio rerio*, toxicity of these chemicals is again quite similar and both can be classified as “nontoxic”. Substantial differences in the sensitivities of the different organisms studied have been found. It should be emphasized that single bioassays have limitations, so transfer or prediction of ecotoxicological data obtained with different biomodels is not always valid. For this reason, it is necessary to include in the study organisms from different levels to allow a better understanding of possible effects of the studied chemicals in ecosystems.

Biography

Beatriz Giner works in the field of Green chemistry, evaluating both physicochemical and ecotoxicological properties. She has co-authored 63 peer-reviewed publications in scientific journals and has over 470 citations with an h-index of 16. Nearly 40% of her papers are published in Q1 journals. Her scientific network is supported by publications with 40 distinct authors with diverse affiliations. Besides, she has co-authored of more than 40 works presented in Scientific National and International Symposiums or Conferences. In the last two years, 3 of her studies have been awarded as the best work in International Conferences.

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