

Greenness evaluation of bioanalytical methods: Application to different microextraction techniques

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The development of bioanalytical protocols in the pharmaceutical industry is of utmost importance for the quantification of drugs and their metabolites during pharmacokinetic, toxicokinetic, and bioequivalence studies. Since biological fluids are characterized by a complex nature, bioanalytical methods commonly consist of many tedious steps (e.g., sample collection, sample preparation, analytical determination *etc.*). The majority of these steps exhibits a high environmental impact. To this end, a lot of effort is being done to maximize the ecological impact of the above steps through the development of microextraction techniques and novel instrumentation in the context of Green Analytical Chemistry [1] and Green Sample Preparation [2].

Green metrics are useful tools for the evaluation of the environmental impact of different analytical methodologies. They provide important information regarding the greenness of a method and their use is considered necessary when a green character is claimed. The overall aim of these tools is to help chemists identify the strong and weak aspects of a method for its improvement. Currently, there are multiple green metrics which are used for the greenness evaluation of bioanalytical methods. The main green metrics will be discussed herein and examples of their application in different case studies will be presented.

References

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