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Abstract

The environmental impact of analytical chemistry methods is an increasingly important concern as the field advances and expands. This paper critically reviews current practices in analytical chemistry, highlighting their environmental impacts related to reagent use, energy consumption, waste generation, and resource utilization. Traditional and modern analytical techniques are examined, revealing significant challenges in reducing their environmental footprint. To address these challenges, a life cycle approach is proposed, integrating Life Cycle Assessment (LCA), green chemistry principles, energy efficiency improvements, waste reduction strategies, and sustainable material use. The paper discusses the benefits of this approach, supported by case studies and examples of successful implementation. By adopting a life cycle perspective, this approach aims to enhance the sustainability of analytical chemistry practices, ensuring that environmental considerations are integral to the development and application of analytical methods.

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***Corresponding author:** Antonio Fontana, Department of Pharmaceutical Toxicology, Bezmialem Vakif University, Turkey, E-mail: antoniofontana@gmail.com

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