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Article

Evaluation of Portuguese Population's Perspectives on Chemical Innovations for Sustainable Development

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ABSTRACT

Background: Chemistry undeniably contributes numerous discoveries and innovations that impact various aspects of societal life and can decisively contribute to more sustainable development. The aim of this study is to evaluate the Portuguese population perspectives on chemical innovations that support sustainable development, focus particularly the topics food industry, health, water technologies, agriculture, energy, and environment.

Methods: The study involved the development and validation of a questionnaire and was conducted using a representative sample of the Portuguese population, with 452 participants of both genders whose ages ranged from 15 to 83 years.

Results: The outcomes from this research highlight that the role chemical innovations for sustainable development are positively perceived in in all topics included in the study, apart from energy. A relative high portion of participants lack knowledge regarding recent chemical developments. A global analysis of the results shows that these perspectives are similar for both genders, independent of residential area, but higher among individuals aged 26 to 65 years and those with higher academic qualifications. Additionally, a model based on Artificial Neural Networks was presented to predict the perspectives of the Portuguese population regarding the chemical innovations for sustainable development. The proposed model performs well, achieving accuracy rates higher than 90%.

Conclusions: The study introduces a new method to evaluate the Portuguese population's overall perspective on chemical innovations for sustainable development and its capacity for improvement. This evaluation is crucial for planning strategies to promote public awareness of the role of chemical innovations in this context.

KEYWORDS: public perspectives evaluation; chemical innovations; sustainable development; artificial neural networks

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