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Analytical method development for sodium valproate through chemical derivatisation

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Background: Sodium valproate has anticonvulsant activity and is structurally different to conventional antiepileptic drugs. The problem with valproic acid is the lack of a chromophore, which means that gas chromatography is the sole assay methodology. The introduction of benzoyl and phenyl groups to the molecule is a useful derivatisation, which enables the creation of detectable chromophores for HPLC analysis for pharmaceutical dosages as well as biological systems.

Methodology: Sodium valproate was derivatised by the addition of a chromophore to its structure by introducing a methyl benzoyl or a phenyl group. Trichlorophenol and 2-hydroxyacetophenone were used to introduce phenyl and benzoyl groups to valproic acid, respectively. The reaction used was estrification reaction using coupling agents. An analytical method was then developed and validated using reverse-phase HPLC. The method was validated for parameters like linearity, range, accuracy precision and robustness.

Results: The developed method was easy and feasible and can be applied to both routine analysis and bio analysis. The method was very sensitive and could quantify valproic acid at a very low concentration of 0.75×10−5 mg/ml. The developed method was found to be linear (R2=0.997), accurate, precise and robust.

Conclusion: The proposed chemical derivatisation and the developed analytical method are novel. The developed analytical procedure is the first of its kind; it is easy and feasible and can be used to quantify and detect sodium valproate at very low concentrations compared to other available methods in the literature.

Biography

Nihaya Wasif Odeh, a master's student at Birzeit University in Pharmaceutical Technology, she is very interested in the topics covered in this program, specializing in health care services, holds a Bachelor's degree in Pharmacy with a very good grade from An-Najah National University. Having worked in drug sales and community pharmacies for four years, she is interested in research on drug analytics and how manufacturing factors affect drugs. Her long-term goal is to get PhD to share her experience with other professional colleges and learn more from them so that she can use her knowledge to make better drugs. She is interested to participate in the conference in order to be able to share her article with discuss it for more developments, she is very pleased to improve and expand her knowledge and skills and hopefully, this conference engaging her in insightful discussions with others about the latest happenings in the field.

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