Analytical Method Development for Sodium Valporate through Chemical Derivatization

Students:
Nihaya Wasif Odeh
Ghadeer Naser Younis
Oyoun Fadel Zeidan

Supervisor:
Dr. Murad Abualhasan

Abstract:

Background: Sodium valporate has anticonvulsant activity and is structurally different than conventional antiepileptic drug.Valporic acid lack conjugation in its structure and this makes it only detected a very short wavelength with low detection sensitivity . The objective of the study is to derivatized sodium valporate and introduce an conjugation to its structure to increase its absorbtion under UV detection range. The developed method can be adapted in routine analysis of valporic acid in pharmaceutical dosage as well as biological system..

Methodology: Sodium valporate was derivatized by adding a chromophore to its structure through introducing a methyl benzoyl or a phenyl group. Two reagents were used namely trichlorophenol and 2-hyddroxyacetophenone to introduce phenyl and benzoyl group to valporic 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 bioanalysis. The method was very sensitive and could quantify valporic acid at a very low quantity. The developed method was found to be linear, accurate precise and robust.

Conclusion: The proposed chemical derivatization and the developed analytical method is novel. The developed analytical procedure is the first of its kind, it is easy and feasible and can used to quantify and detect sodium valporate at very low concentration compared to other available methods available in the literature