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FTIR-SPECTROPHOTOMETRIC ANALYSIS OF CERBERIN IN RAT PLASMA

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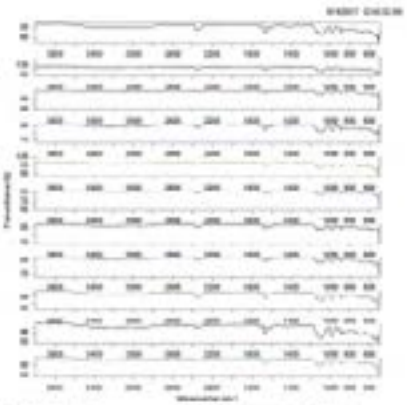
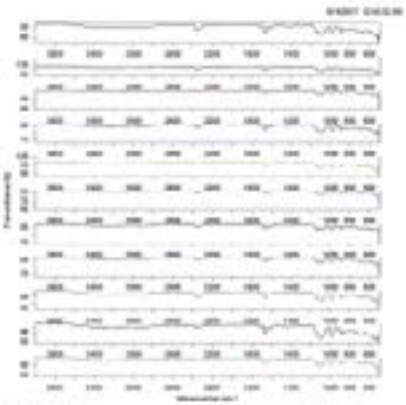
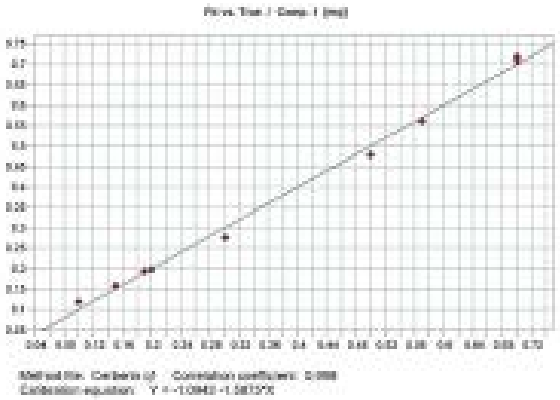
Cerberin (2-o-Acetyl neriifolin) is the principal cardiac glycoside present in the seeds of ***Cerbera odollam*** belonging to the Apocyanaceae family. The seeds of ***Cerbera odollam*** are used as a poison for suicidal as well as homicidal purpose by people around the world. Its detection in the body fluids is somewhat difficult. The aim of this study was to develop a FT-IR spectrophotometric procedure for the analysis of cerberin in rat plasma3. A Fourier transform infrared (FT-IR) spectrometric method was developed for the rapid, direct determination of cerberin in rat plasma. The universal ATR spectra was recorded and used for this study. Multiple linear regressions (MLR), with a restricted set of absorption band were used for calibration. Beer-Lambert law was used for data processing. A recovery of 98.8% of cerberin from rat plasma with a correlation coefficient of 0.9980 was obtained. The linear regression equation for cerberin was calculated to be y = -1.0943–1.5875 x, where x and y are concentration and integrated peak area, respectively. The method had excellent reproducibility for the standard of 0.2 mg, 0.19±0.107% (n=6). The recovery test is an experimental design to verify the relationship between the amount of substance added and the amount quantified by this assay. In this test, the observed concentrations of pure cerberin in rat plasma were not significantly different from the stated concentrations by Student's t-test, P=0.05% (100.06±1.28%, n=3). The method gave rise to linear data in the range 0.1–0.8 mg with accuracy and precision in the range 0.86–1.4%. Therefore, this FT-IR-spectrophotometric assay was accurate, and may be recommended for the simple quantification of cerberin.

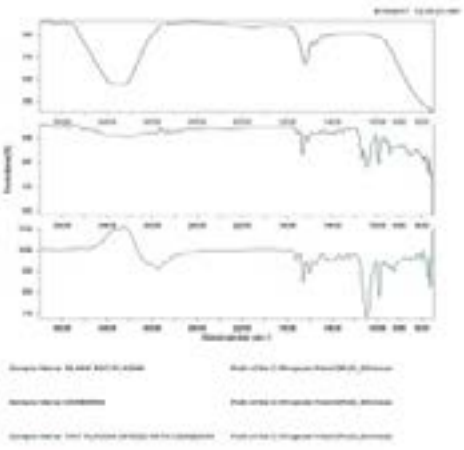
Recent Publications

1. Prasanth S S and Rajasekaran A (2015) Derivative ultra-violet spectroscopic method for the estimation of cerberin in rat plasma. International Journal of Pharma and Bio Sciences 6(1):749 –758.
2. Prasanth S S and Rajasekaran A (2015) Visible spectrophotometric determination of cerberin in rat plasma. J App Pharm Sci, 5(03):109–112.
3. Prasanth S S and Aiyalu R (2015) Quantitative determination of cerberin in seed extract of ***Cerbera odollam*** and rat serum by high performance thin layer chromatography. J App Pharm Sci. 5(3):061–069.
4. Carlier J, Guitton J, Bevalot F, Fanton L and Gaillard Y (2014) The principal toxic glycosidic steroids in *Cerbera* manghas L. seeds: identification of cerberin, nerifolin, tanhinin and deacetyltanghinin by UHPLC-HRMS/MS, quantification by UHPLC-PDA-MS. Journal of Chromatography Analytical Technology Biomed Life Sciences 962:1–8.
5. Yvan Gaillard, Ananthasankaran Krishnamoorthy and Fabien Bevalota (2004) ***Cerbera odollam***: a 'suicide tree' and cause of death in the state of Kerala, India. Journal of Ethnopharmacology 95:123–126.









Biography

Prasanth S S is a Professor in Al Shifa College of Pharmacy, Kerala and has been awarded PhD on his research thesis entitled 'Novel analytical techniques for quantification of the toxic phytochemical of *Cerbera* species'. His broad area of research interest includes development of analytical techniques for bulk drugs, formulations and natural products. During his Postgraduate studies, he was trained at the Toxicology Department, Medical College, and Trivandrum. He is experienced in analyzing drugs and toxins in various biological fluids of human body. His researches lead to the development of some analytical methods for detection and quantification of cerberin in rat plasma and serum.

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