Pharmacy Education (2024) 24(7) 73 - 74
https://doi.org/10.46542/pe.2024.247.7374

CONFERENCE ABSTRACTS

FIP CAPE TOWN 2024

82nd FIP World Congress of Pharmacy and Pharmaceutical Sciences in Cape Town, South Africa, 1 to 4 September 2024

Clinical biology

Determination of cannabinoids in plasma

Neve Borg, Janis Vella Szijj, Anthony Serracino-Inglott

Department of Pharmacy, Faculty of Medicine and Surgery, University of Malta

Introduction: The use of cannabis in the medical industry is increasing. Tetrahydrocannabinol (THC)'s psychoactive properties and Cannabidiol (CBD)'s analgesic, neuroprotective, anticonvulsant, anti-inflammatory and anti-emetic properties contribute to the different conditions for which medical cannabis can be used.

Objectives: To develop and validate a quick and efficient method to quantify THC and cannabidiol CBD in plasma using High-Performance Liquid Chromatography (HPLC) coupled with Ultraviolet (UV) detection.

Methods: An analytical method to determine the concentration of THC in plasma was developed, and analytical parameters, including stationary phase, mobile phase, detector, sample preparation technique, and biological matrix, were identified.

The method was validated for accuracy, intra-day and inter-day precision, linearity, selectivity and stability, and compliance with the International Council of Harmonisation 1 (ICH) guidelines.

Results: Protein precipitation was performed on plasma samples containing different concentrations of THC using ice-cold acetonitrile in a 1:1.5 plasma-to-acetonitrile ratio, followed by vortex mixing, centrifugation and filtration using syringe filters. The sample was then analysed using the ACE C18 chromatographic column as the stationary phase (250 x 4.6mm; 5µm i.d) and a 30:70 water with 0.01% acetic acid: acetonitrile with 0.01% acetic acid as the mobile phase. THC was detected using a UV spectrophotometer at a wavelength of 225nm and eluted at a retention time of 15.14 minutes.

During method validation, the method was found to have valid inter-day precision, selectivity and linearity.

Conclusions: The developed method demonstrated robustness whilst utilising equipment that is accessible in analytical settings. Further research that is now proposed is to apply the developed and validated method to determine CBD in the plasma of patients. Determination of cannabinoids in patients' biological fluids can help provide more pharmacokinetic information, leading to better dosing of cannabinoids and increased patient safety.

~~Impact of fetal ezrin deficiency on decidual immune cells in mice model~~

~~Tomohiro Nishimura, Mayuko Yamanaka, Ryo Mizokami, Saki Noguchi, Masatoshi Tomi~~

~~*Keio University Tokyo, Japan*~~

~~**Introduction:** Fetal mice lacking the ezrin gene display fetal growth restriction (FGR) after gestational day (GD) 15.5. Ezrin serves as a crucial cross-linker protein between a membrane protein and cytosolic actin, exhibiting abundant expression in the placenta among the ERM protein family. Intriguingly, the fetal ezrin gene knockout also unveils an absence of ezrin in the maternal decidua, a significant tissue for immunotolerance toward the semi-allogenic fetus. It has been reported that fetus-derived invasive trophoblasts interact with maternal immune cells in the decidua. The objective of this study is to elucidate the impact of fetus-derived ezrin on decidual immune cells, influencing both fetal growth and immunotolerance.~~