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Investigation of the Effect of Blood Hematocrit and Lipid Content on the Blood Volume Deposited by a Disposable Dried Blood Spot Collection Device

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Graphical abstract



Highlights

- Innovative disposable volumetric dried blood sampler tested
- Consistent blood volumes derived regardless of hematocrit, or lipid content
- Volumetric performance was consistent with that of a pipette
- Device was simple to use and gave 92.9% acceptable samples

Abstract

When using dried blood spot (DBS) sampling for the quantitative bioanalysis of circulating concentrations of drugs, metabolites and endogenous analytes, it is important that a fixed volume of blood is deposited to overcome the issues associated with blood hematocrit (HCT) and homogeneity. The volumetric performance of the KTH DBS collection device was tested with radiolabelled [¹⁴C]-diclofenac. It was demonstrated that the device deposits a fixed volume of blood (13.5 µL) regardless of the HCT (25-65%), or lipid content of the blood sample. Further, it was found that the precision and accuracy of the derived dried blood

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