BOOK OF ABSTRACTS

FLOW ANALYSIS XV

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JUNE 26 – JULY 1

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Development of a microfluidic paper-based analytical device (μPAD) for iron determination in water

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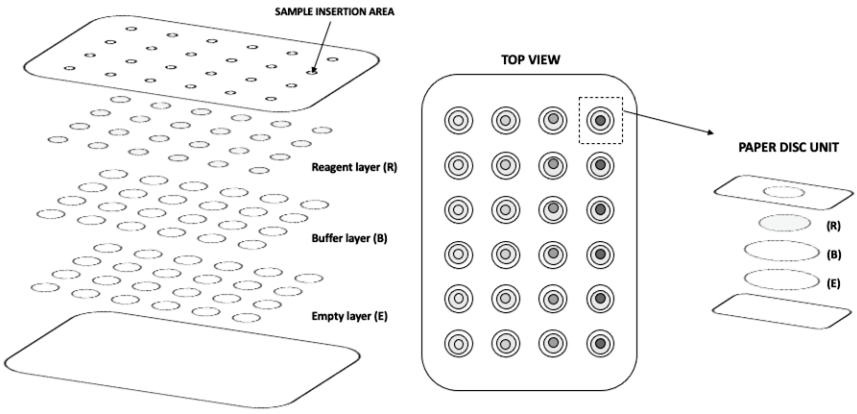
Ingestion of waters with high iron concentration can cause several risks to human health. In this work, a new microfluidic paper-based analytical device (μPAD) was developed to quantify iron in surface and waste waters using a new fluorescent 3-hydroxy-4-pyridione ligand. Under optimal conditions, a linear calibration curve was obtained in the concentration range of 0.25 – 2.00 mg/L with a limit detection of 0.11 mg/L. The proposed μPAD method was successfully applied to the determination of iron in surface and waste water samples with no need for sample pre-treatment, and its accuracy evaluated by comparing to the AAS standard method (RD < 10%). The developed μPAD is simple, economical, sensitive and present low analysis time. Each μPAD uses low amounts of reagents, approximately 0.5 mg of ligand and 17 mg of sodium hydrogenocarbonate and sample consumption of 100 μL.



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