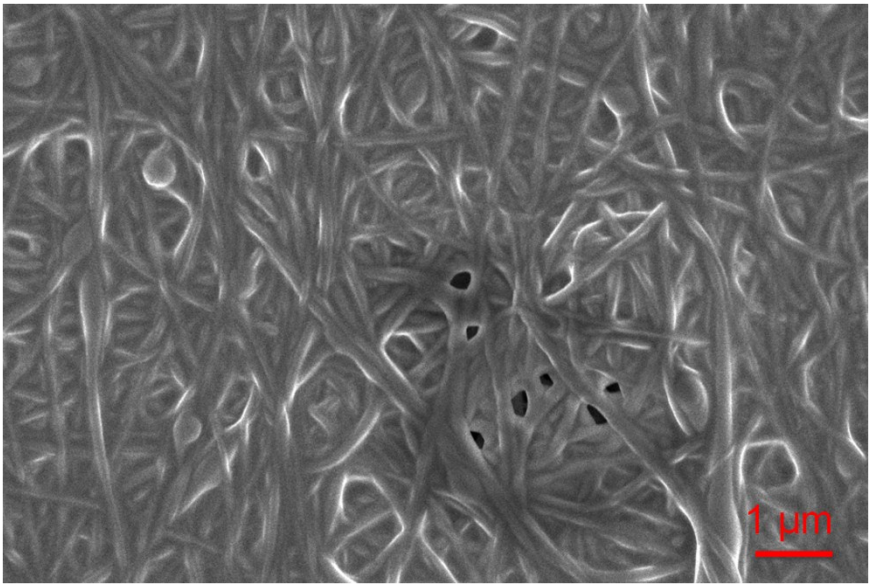
Electronic Supplementary Material (ESI) for Analyst.

A)



B)

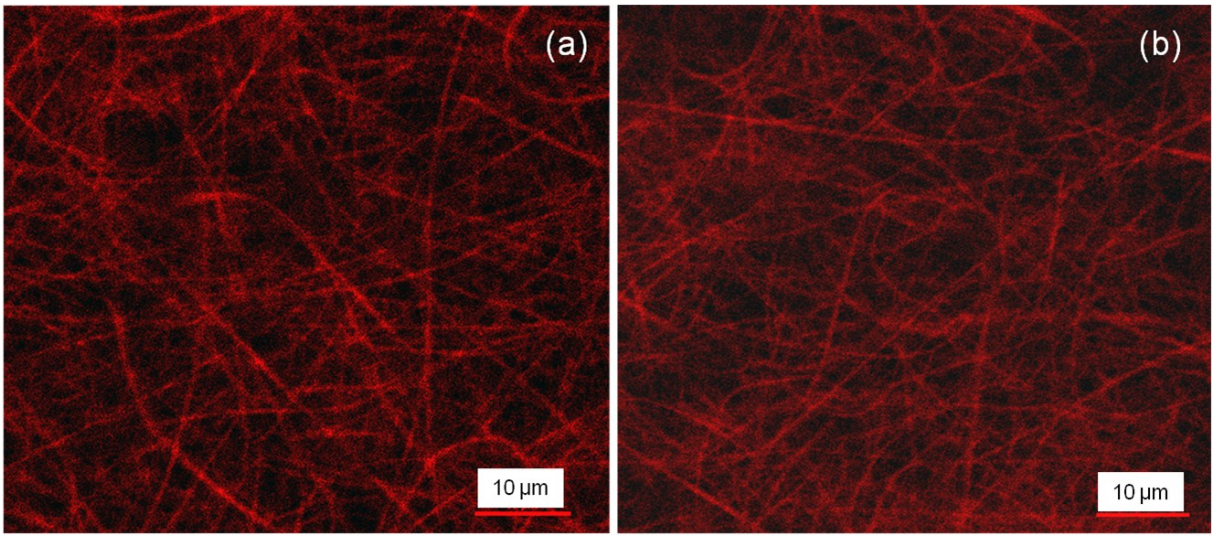


Fig. S1 A) SEM image of PVDF nanofibers coated with net DOS added in excess. Please note that for sensor preparation mixture of DOS with chloroform in optimized amount was used.

B) Magnification of confocal images of core-shell PVDF-DOS nanofibers coated with a cocktail for (a) pH and (b) K^+ detection.

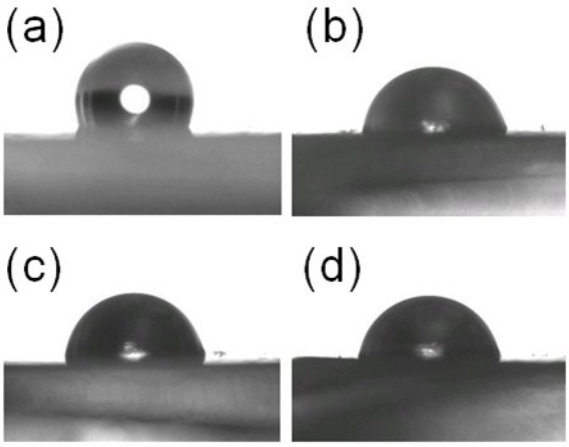


Fig. S2 Images of water drop during contact angle measurements, on nanofibrous PVDF mats: pure nanofibers (a) and coated with DOS dispersed previously in $CHCl_3$ (b), cocktail for pH (c) and K^+ (d) detection.

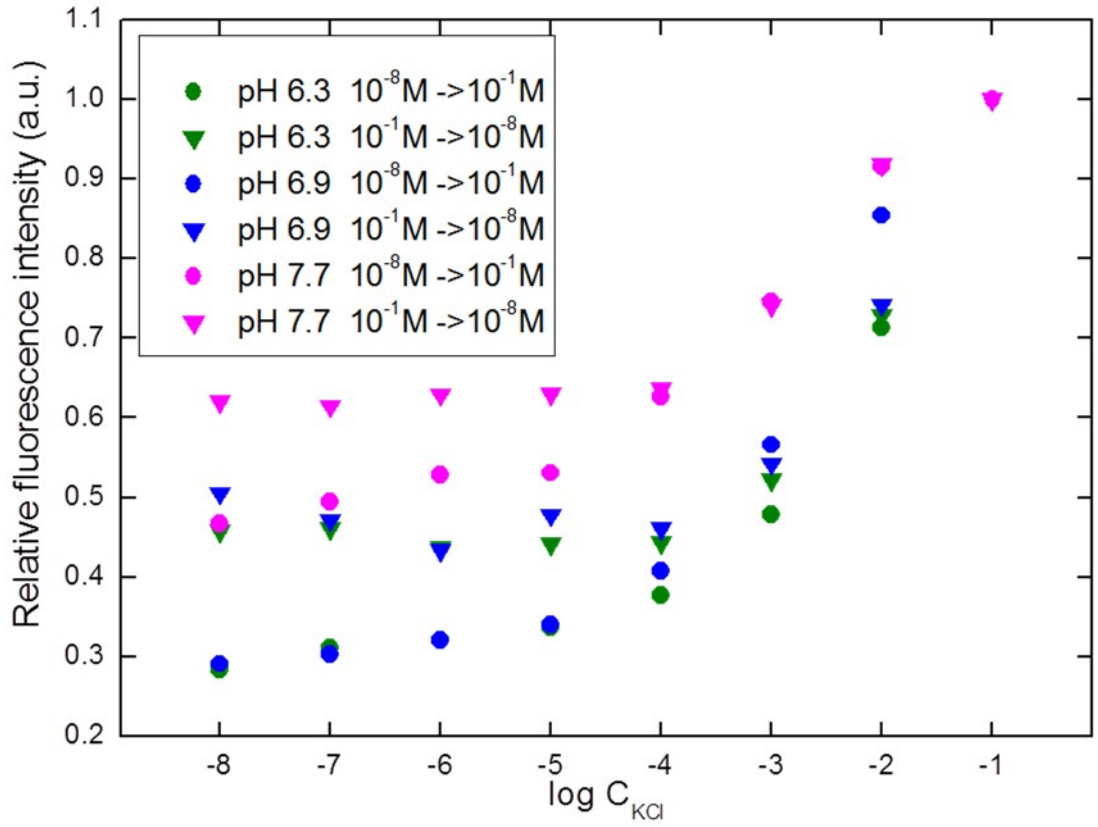


Fig. S3 The effect of pH on the emission vs. logarithm of concentration of KCl dependence recorded for K^+ cocktail-coated PVDF nanofibers supported optode treated with MOPS (3-(N-Morpholino)propanesulfonic acid) 10^{-2} M, NaOH buffers.

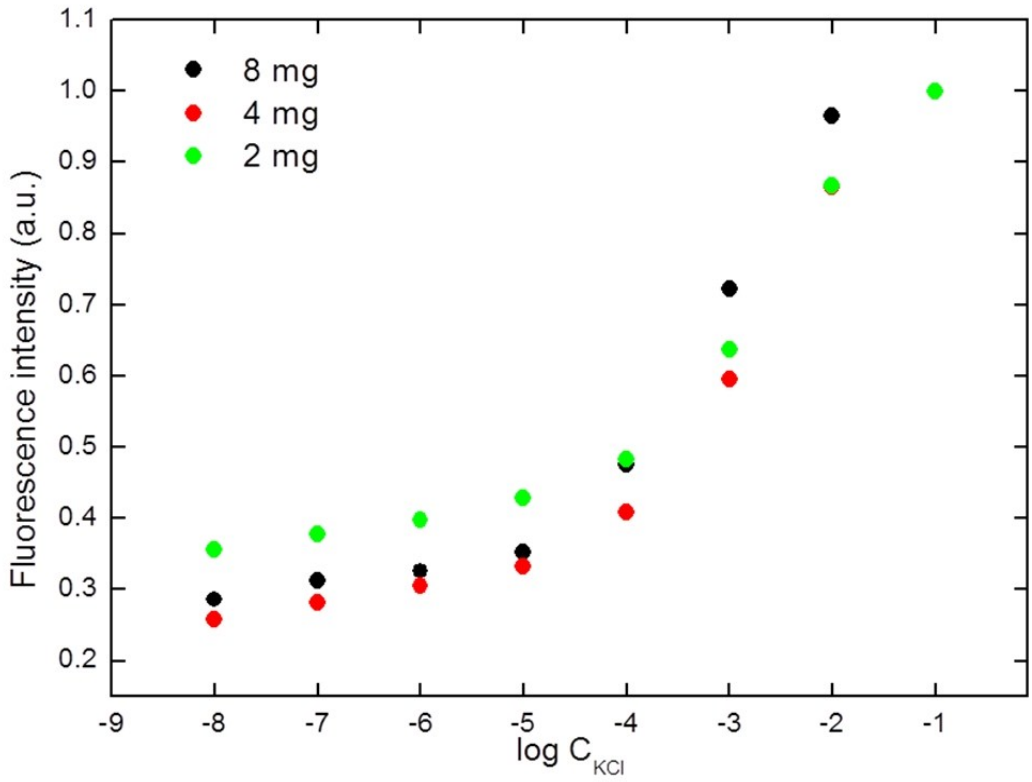


Fig. S4 The effect of change in valinomycin contents in the receptor phase on the observed emission dependence on changes on logarithm of potassium ions concentrations in solution.

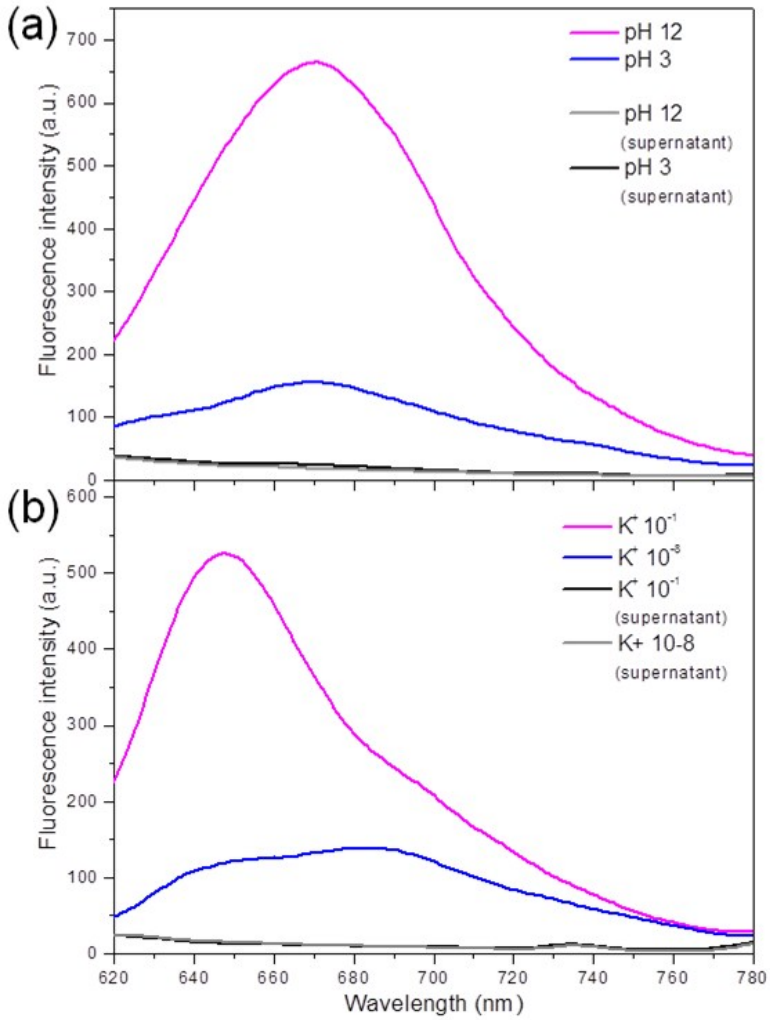


Fig. S5 Photoemission spectra of pH and K^+ cocktail-coated PVDF nanofibers treated with universal buffer (sodium salt based, 0.1 M) for pH 12.03 and 2.94, and (b) K^+ cations at concentrations 10^{-1} and 10^{-8} M for over 30 min. Photoemission spectra of the supernatants after the pH (a) and K^+ (b) sensing experiments.

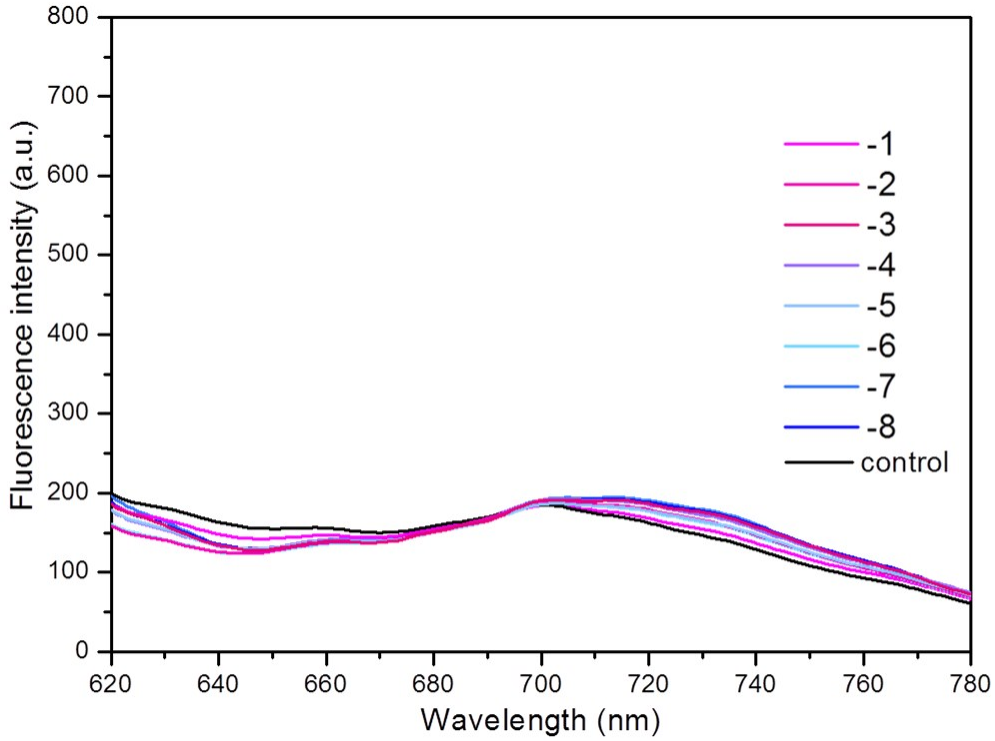


Fig. S6 Photoemission spectra of PVDF nanofibers treated with Na^+ cations at different concentrations (from 10^{-8} to 0.1 M) in 10^{-2} M Tris buffer for pH 7.23 (HCl). The nanofibers treated with Tris buffer act as a control sample. The nanofibers were coated with the mixture of chromoionophore I, valinomycin, KTChPB and DOS before experiment. The fluorescence intensity was measured under excitation wavelength of 580 nm, slits of 10/10 nm and detection voltage of 500 V.

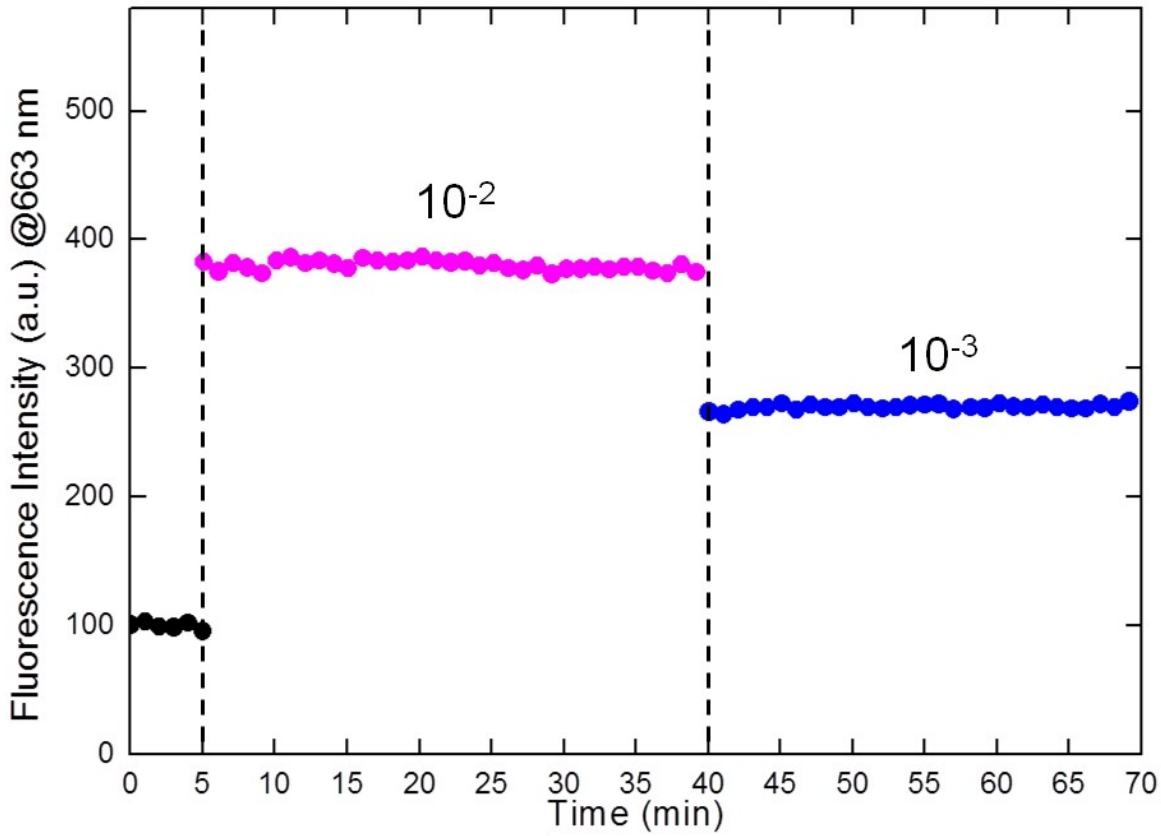


Fig. S7 Change of the fluorescence intensity recorded at 663 nm for K^+-sensitive nanofibers following measurements of control sample (PVDF nanofibers coated with the cocktail) and ion concentration change from 10^{-2} to 10^{-3} M.