Supporting Information

Solvothermal synthesis of KBi_3F_{10}: Eu^{3+} phosphors as a selective three-in-one fluorescent probe for Cr^{3+}, CrO_4^{2-} and $Cr_2O_7^{2-}$ ions detection

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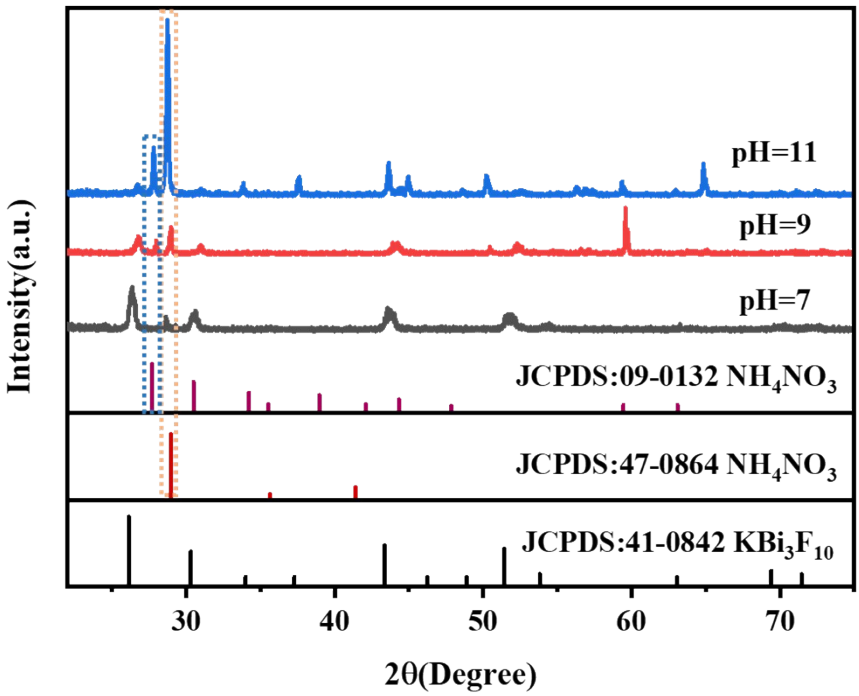

Fig S1. XRD patterns of KBi_3F_{10}:12%Eu^{3+}synthesized at different pH

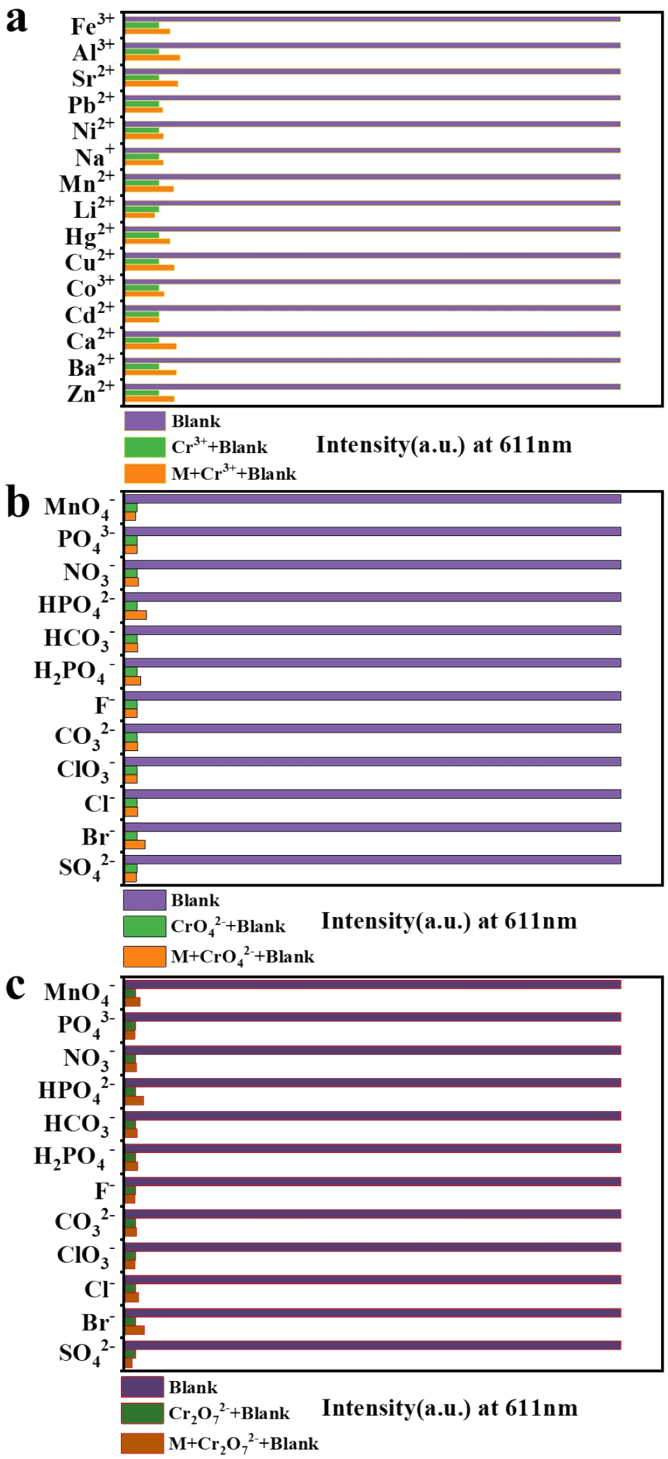

Fig S2. Relative luminescence intensity of KBi_3F_{10}:12%Eu^{3+} suspension at 611 nm after addition of detection and interfering ions.

Table S1 LOD values of some published ion detection probes

Author	Probe	Detection ions	LOD
Li et al.	$YF_3:Eu^{3+}$	Cr^{3+}	1.88 μM
		$Cr_2O_7^{2-}$	1.34 μM
Guo et al.	two-dimensional Zn(II) organic skeleton	Cr^{3+}	2.44 μM
		CrO_4^{2-}	4.8 μM
		$Cr_2O_7^{2-}$	3.53 μM
Huang et al.	1α-DMF	CrO_4^{2-}	2.29 μM
	1β-DMAc	$Cr_2O_7^{2-}$	0.94 μM
Zhou et al.	Cu_2I_2	CrO_4^{2-}	74.5 μM
	Cu_6S_6	$Cr_2O_7^{2-}$	24 μM
Song et al.	Zn-organic frameworks	CrO_4^{2-}	4 μM
		$Cr_2O_7^{2-}$	1 μM

Table S2 Control standards for Cr content in drinking water sources by some countries and international organizations

Standard	Cr($\mu g/L$)
U.S.EPA,2009	100
WHO,2008	50
GB3838-2002(III)	50
GB 5749-2022	50