Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

pH-regulative synthesis of $Na_3(VPO_4)_2F_3$ nanoflowers and their improved Na cycling stability

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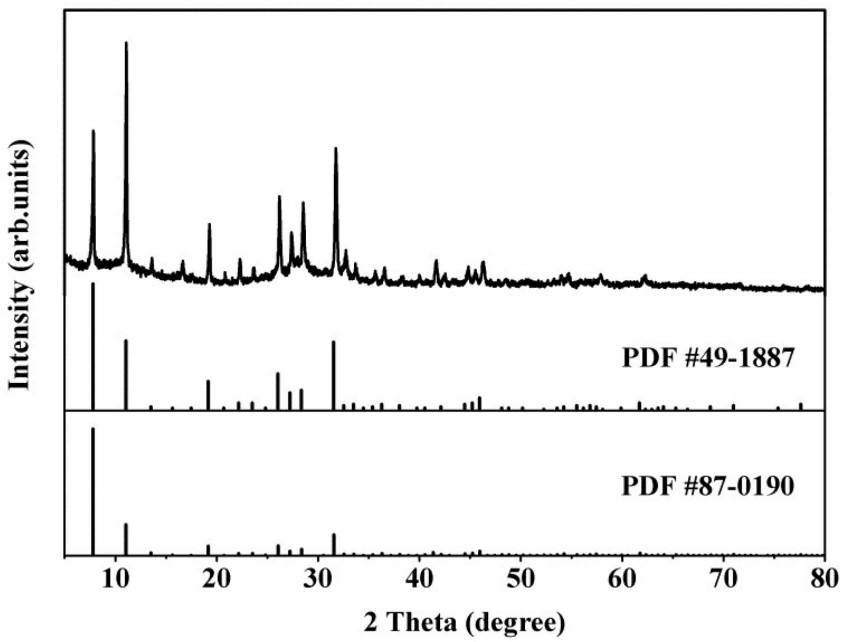
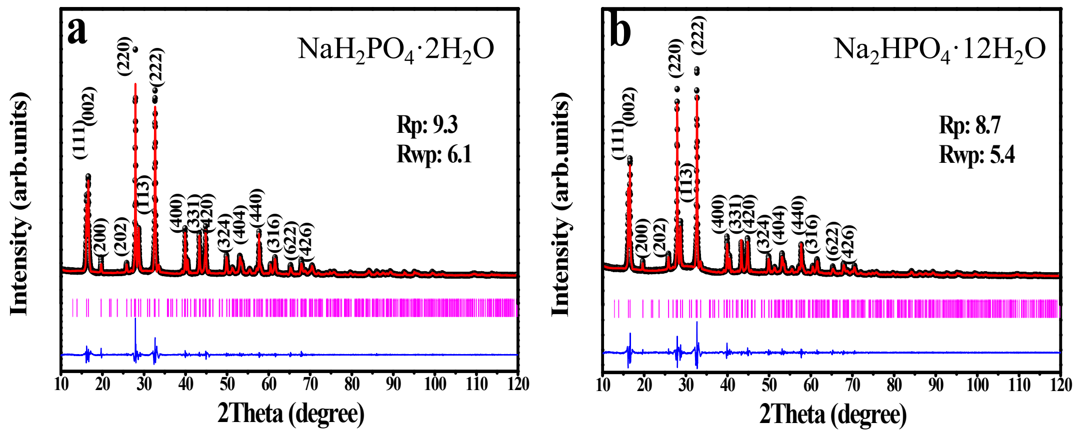


Fig. S1 XRD patterns of the solid product derived from Na_3PO_4 as phosphorus source, JCPDS card # 49-1887 ($Na_{3.44}[(V_5O_9)(PO_4)_2](PO_4)_{0.08}(OH)_{0.2}\cdot 9H_2O$) and # 87-0190 ($Na_{3.053}((V_5O_9)(PO_4)_2)(OH)_{0.1}\cdot 8H_2O$).



	$NaH_2PO_4\cdot 2H_2O$	$Na_2HPO_4\cdot 12H_2O$
a(Å)	9.03535(7)	9.03181(6)
b(Å)	9.03535(7)	9.03181(6)
c(Å)	10.69549(6)	10.68671(6)
V(Å^3)	873.2	871.8
Space Group	P42/mnm	P42/mnm
Crystal System	Tetragonal	Tetragonal

Fig. S2 The fitted profiles of $Na_3(VPO_4)_2F_3$ prepared by $NaH_2PO_4 \cdot 2H_2O$ (a) and $Na_2HPO_4 \cdot 12H_2O$ (b) and the corresponding fitted lattice parameters. The black (red) line represents the experimental (calculated) data. The residual discrepancy is shown in blue.

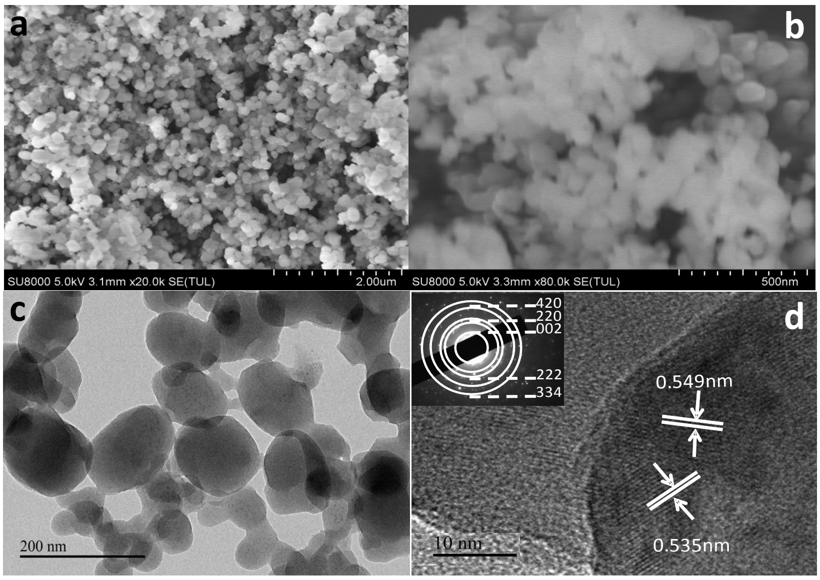


Fig. S3 Typical SEM images at the different magnifications (a-c), typical high-magnification TEM (HRTEM) image and corresponding SAED pattern (d) for $Na_3(VPO_4)_2F_3$ nanoparticles using Na_2HPO_4□$12H_2O$ as phosphorus source.

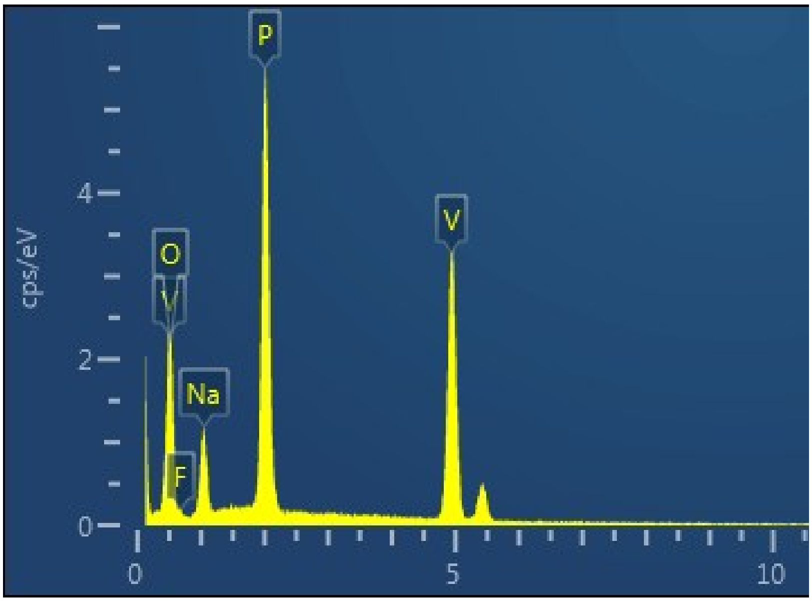


Fig. S4 EDS analysis of the product at 0 h taking $NaH_2PO_4 \cdot 2H_2O$ as phosphorus source.

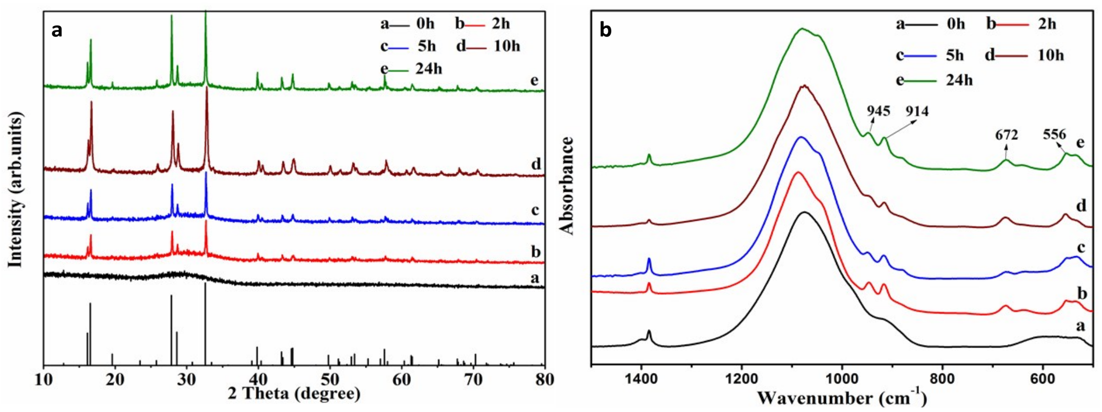


Fig. S5 (a) XRD patterns and (b) FTIR spectra of the products taking $Na_2HPO_4 \cdot 12H_2O$ as phosphorus source with a different hydro-thermal time.

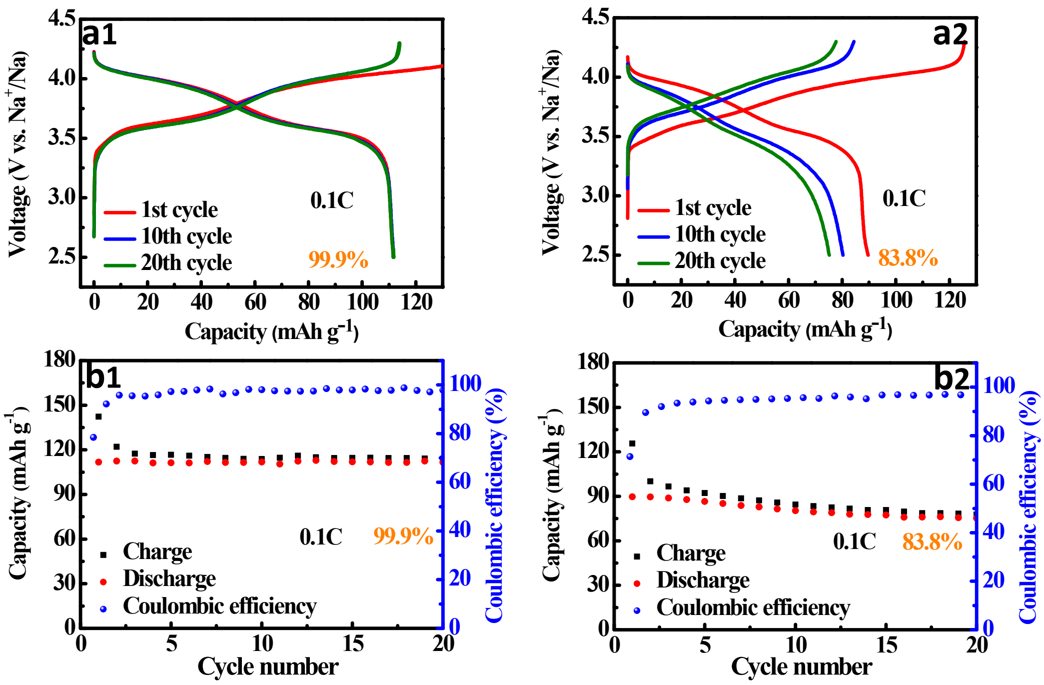


Fig. S6 Comparison of Na-storage properties between $Na_3(VPO_4)_2F_3$ nanoflower (1) prepared by NaH_2PO_4□$2H_2O$ and $Na_3(VPO_4)_2F_3$ nanoparticles (2) prepared by $Na_2HPO_4 \cdot 12H_2O$. Galvanostatic charge and discharge curves (a); The cycling performance and Coulombic efficiency at a current rate of 0.1C (b).