Bulky complex ions can crystallize when their charges are neutralized by means of compensation. We have examined crystallization between some tris(2,2′-bipyridine) metal complex cations of 2⁺ and tris(oxalate) complex anions of 3⁻. When sodium salt of tris(oxalato)aluminate(III) were used for preparation, crystals grew easily in compact cubic form (P2₁3 #198). There are Na⁺ linked [Al(ox)₃]⁻ cage in which 2,2′-bipyridyl complexes are packed (Fig. 1). On the other hand, potassium salt did not give crystal easily. Further concentration gave racemic brittle monoclinic crystals (P2₁/c #14) which does not include K⁺ ions but halide anions. There are large cavities for halide ions and water molecules, and the halides are disordered (Fig. 2).

Fig. 1 Crystal structure of [Fe(bpy)₃][NaAl(ox)₃]

Fig. 2 Crystal structure of [Fe(bpy)₃]₁₂[Al(ox)₃]Br·nH₂O

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