

1 Improved Solubility of Vortioxetine Using C2-C4 2 Straight-chain Dicarboxylic Acid Salt Hydrates

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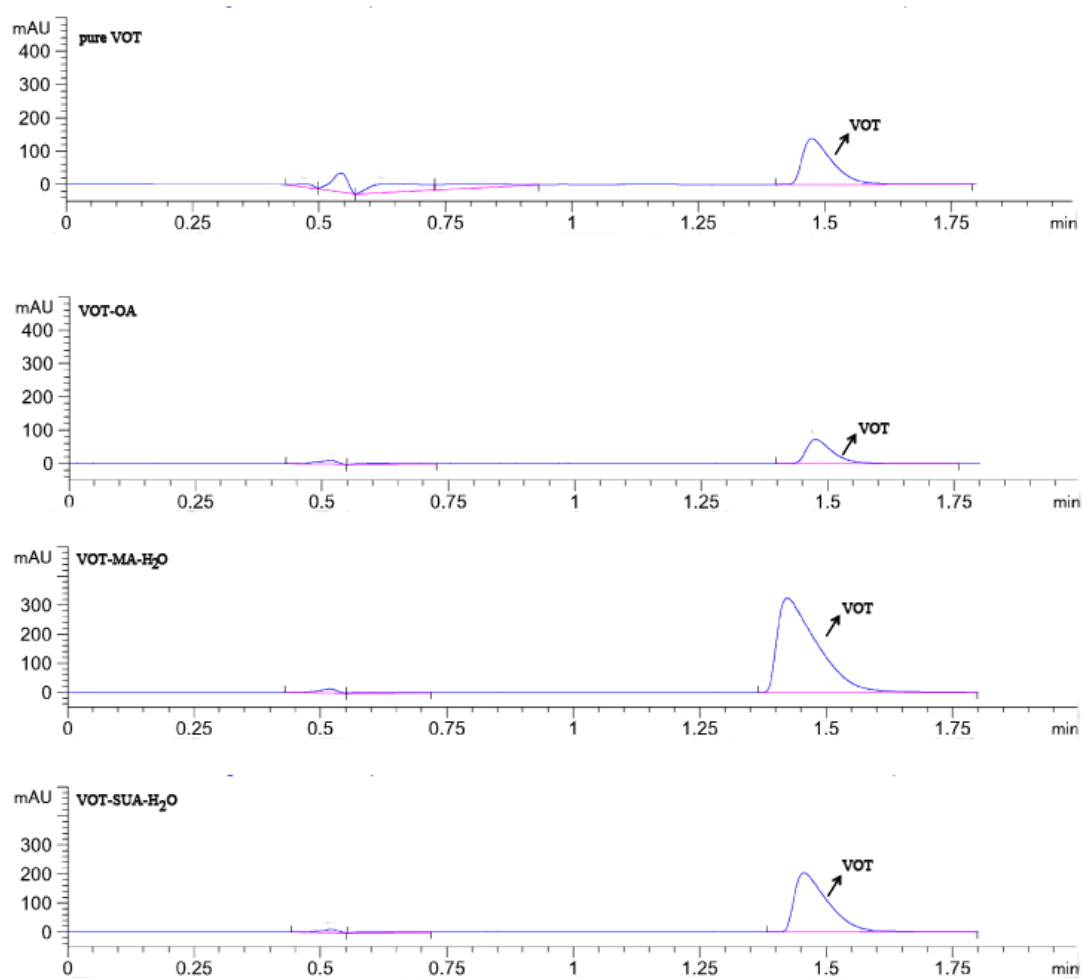
5 **Table S1.** Torsion angles (°) variation of VOT molecules extracted from crystal structures

Compounds	A-B	A-C
VOT	5.8(3)	34.8(3)
VOT-OA	18.3(4)	20.9(4)
VOT-MA-H ₂ O	8.4(3)	43.8(3)
VOT-SUA-H ₂ O	4.6(4)	41.7(4)

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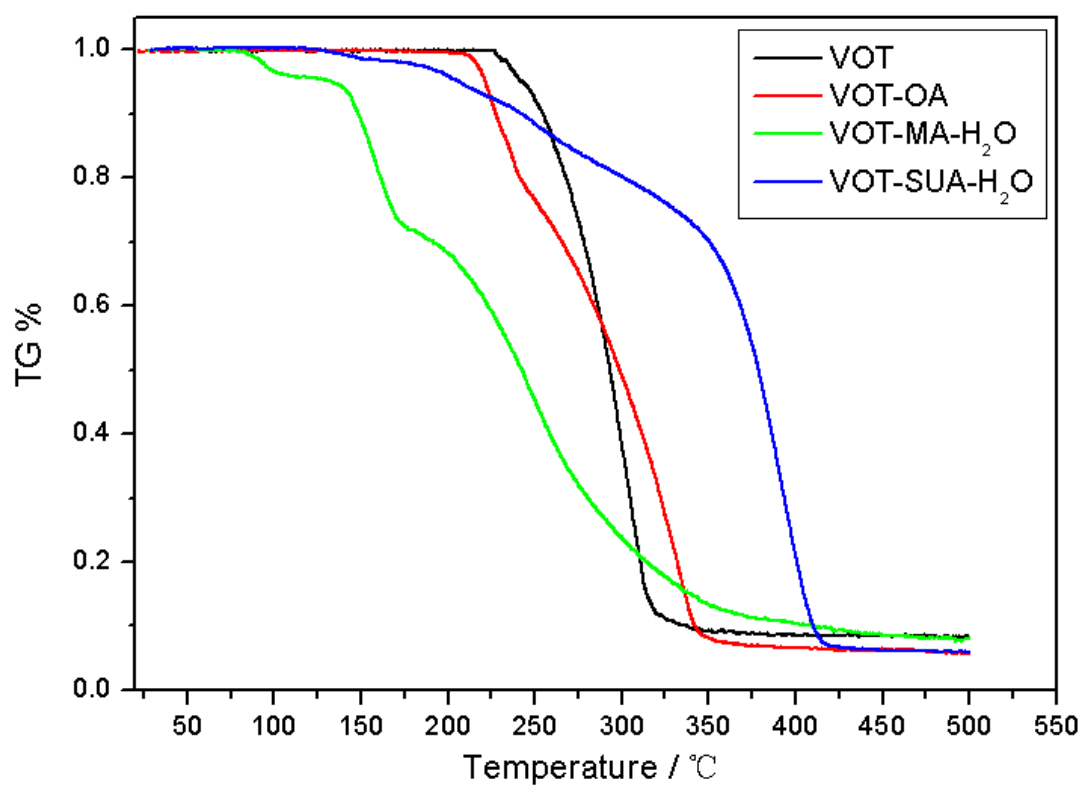
Table S2. Preparation of VOT salts

VOT (mg)	Coformer (mg)	Solvent	Condition	Solid form
20	6 mg OA	methanol	room temperature	VOT-OA
20	6 mg OA	ethanol	room temperature	VOT-OA
20	6 mg OA	acetonitrile	room temperature	VOT-OA
20	6 mg OA	acetone	room temperature	VOT-OA
20	6 mg OA	acetone-water (3:1, v/v)	room temperature	VOT-OA
20	7 mg MA	methanol	room temperature	oily matter (failed)
20	7 mg MA	ethanol	room temperature	oily matter (failed)
20	7 mg MA	acetonitrile	room temperature	oily matter (failed)
20	7 mg MA	chloroform	room temperature	oily matter (failed)
20	7 mg MA	acetone	room temperature	white powder (failed)
20	7 mg MA	acetone-water (1:1, v/v)	room temperature	white powder (failed)
20	7 mg MA	acetone-toluence (1:1, v/v)	35 % humidity condition	VOT-MA-H ₂ O
20	8 mg SUA	methanol	room temperature	white powder (failed)
20	8 mg SUA	ethanol	room temperature	white powder (failed)
20	8 mg SUA	acetonitrile	room temperature	white powder (failed)
20	8 mg SUA	acetone	room temperature	white powder (failed)
20	8 mg SUA	chloroform-methanol (2:1, v/v)	room temperature	white powder (failed)
20	8 mg SUA	methanol-toluence (1:1, v/v)	room temperature	white powder (failed)
20	8 mg SUA	acetonitrile-water (2:1, v/v)	room temperature	white powder (failed)
20	8 mg SUA	methanol-water (2:1, v/v)	room temperature	VOT-SUA-H ₂ O



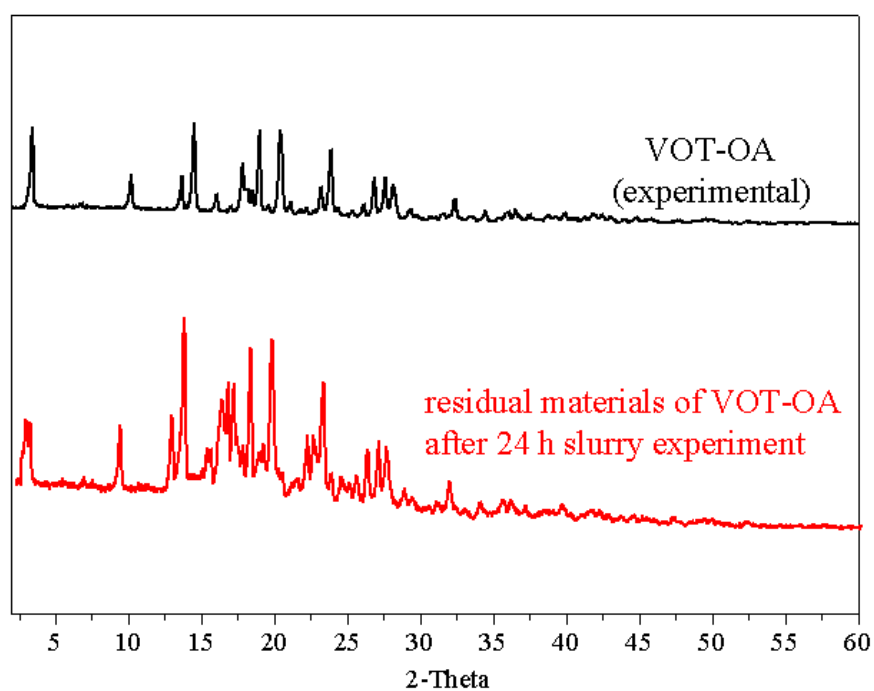
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Figure S1. The HPLC graphs of VOT and its salts.



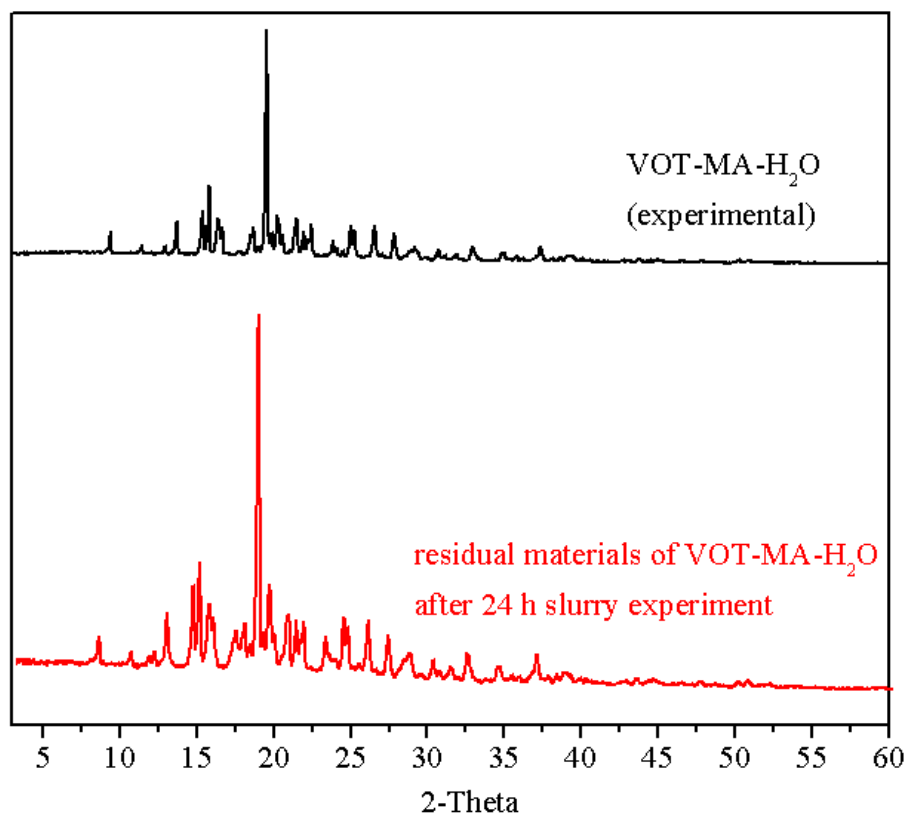
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Figure S2. The TGA plots of VOT and its salts.



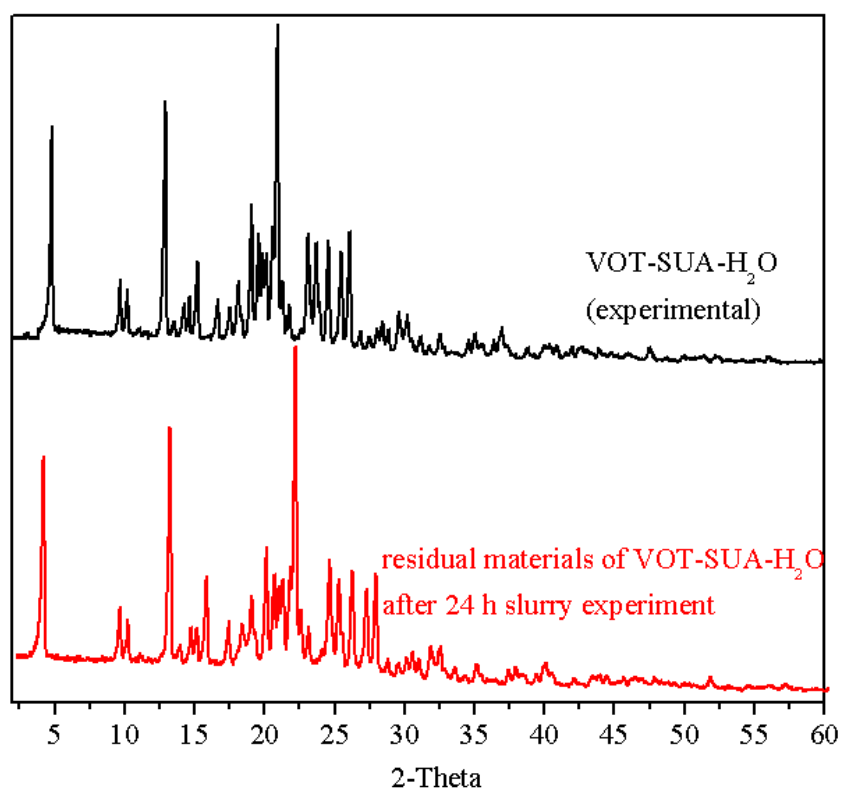
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Figure S3. Comparison PXRD patterns of VOT-OA and its residual materials after 24h solubility in aqueous medium.



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16 **Figure S4.** Comparison PXRD patterns of VOT-MA-H₂O and its residual materials after 24h
17 solubility in aqueous medium.



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19 **Figure S5.** Comparison PXRD patterns of VOT-SUA-H₂O and its residual materials after 24h
20 solubility in aqueous medium.