



Crystal structure of tetramethyltetrathiafulvalenium (1S)-camphor-10-sulfonate dihydrate

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Résumé en anglais	<p>Electro-oxidation of tetramethyltetrathiafulvalene (TMTTF) in the presence of the chiral anion (1S)-camphor-10-sulfonate (S-camphSO₃⁻) in tetrahydrofuran/water medium afforded a 1/1 salt formulated as TMTTF·S-camphSO₃·2H₂O or 2-(4,5-dimethyl-1,3-dithiol-2-ylidene)-4,5-dimethyl-1,3-dithiole radical ion (1+) [(1S)-7,7-dimethyl-2-oxobicyclo[2.2.1]heptan-1-yl]methanesulfonate dihydrate, C₁₀H₁₂S₄⁺·C₁₀H₁₅O₄S⁻·2H₂O. In this salt, two independent TMTTF units are present but, in both cases, the observed bond lengths and especially the central C=C distance [1.392 (6) and 1.378 (6) Å] are in agreement with a complete oxidation of TMTTF which is thus present as TMTTF⁺ radical cations. These cations form one-dimensional stacks in which they are associated two by two, forming dimers with short [3.472 (1) to 3.554 (2) Å] S...S contacts. The two S-camphSO₃ anions present also form stacks and are connected with each other via the water molecules with many O-H...O hydrogen bonds ranging from 1.86 (3) to 2.15 (4) Å; the O-H...O hydrogen-bonding network can be described as being constituted of C₂₂(6) chains bearing R₃₃(11) lateral rings. On the other hand, the columns of cations and anions are connected through C-H...O hydrogen bonds, forming a system expanding in three directions; finally, the result is a three-dimensional network of O-H...O and C-H...O hydrogen bonds.</p>
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