

Chiral oxidovanadium(V) complexes with tridentate Schiff bases derived from S(+)-2-amino-1-propanol: synthesis, structure, characterization and catalytic activity.

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Streszczenie

A series of vanadium(V) complexes with chiral tridentate Schiff base ligands, obtained by a single condensation of S(+)-2-amino-1-propanol with salicylaldehyde and its derivatives, were prepared. The complexes were characterized by elemental analysis and by their IR, CD, UV–Vis, 1D (^1H , ^{51}V) and 2D (COSY, gHSQC) NMR spectra. The X-ray analysis of μ -oxido-bis({S(+)-2-[(1-oxidopropyl)iminomethyl]-4-nitrophenolato- $\kappa^3\text{N,O,O'}$ }oxidovanadium(V)), $\text{V}_2\text{O}_3(\text{C}_{10}\text{H}_{10}\text{N}_2\text{O}_4)_2$, **7**, revealed oxido-bridged dinuclear structure with, unexpectedly, two five-coordinate square-pyramidal geometries about metal atoms. The two O-bonded oxidovanadium units are in the twist-angular configuration with the $\text{V}^{\text{V}}\text{--O--V}^{\text{V}}$ angle of $107.05(11)^\circ$ and V–O distances of 1.794(2) and 1.826(2) Å. The vanadium(V) complexes have ability to catalyze the oxidation of sulfides [PhSR (R = Me, Bz)] in good yields and enantiomeric excesses, utilizing aqueous 30% hydrogen peroxide or cumene hydroperoxide (CHP) as oxidant.

Słowa kluczowe

vanadium (V), Schiff-base, Complex, amino alcohol, sulfoxidation

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