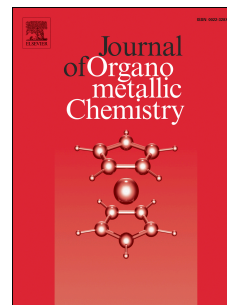


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Ruthenium Carbonyl Containing 4-Pyrones as Potent Anticancer Agents[☆]

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Four new triruthenium carbonyl containing 4-pyrones: Ru₃(CO)₈(2L-2H) **1** (L = ethylmaltol), Ru₃(CO)₇(PTA) (2L-2H) **2** (L = ethylmaltol, PTA = 1,3,5 triaza-7-phosphaadamantane), Ru₃(CO)₈(2L-2H) **3** (L = allomaltol), Ru₃(CO)₇(PTA)(2L-2H) **4** (L = allomaltol, PTA = 1,3,5 triaza-7-phosphaadamantane) have been synthesized and characterized. Anticancer activity of compounds **1-4** has been evaluated in vitro against five types of human cancer cell lines and compared with clinically used drug cisplatin. Anticancer activity of compound **1** is an order magnitude more potent than cisplatin against five types of human cancer cell lines. Compounds **1** and **2** with ethyl group at 2-position is more active than the compounds **3** and **4** with methyl group at 6-position. Substitution of a CO ligand with PTA decreases the activity following the order **1**>**2** and **3**<**4**. The single crystal X-ray structure of compound **1** shows two Ru-CH₂-H₂C-H---O-Ru interactions: one ethyl group C(217)-C(218) bonded to Ru(2) folded towards ruthenium Ru(3) to form Ru(2)-CH₂-H₂C-H--O-Ru(3) interaction and the second ethylmaltolato ligand C(317)-C(318) bonded to Ru(3) folded towards Ru(2) to form Ru(3)-CH₂-H₂C-H---O-Ru(2). Proton NMR shows a well-resolved multiplet instead of a simple quartet for methylene protons indicating asymmetric environment.

[☆]Dedicated with inspiration and appreciation to Prof. Richard D. Adams on the occasion of his 70th birthday.

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