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Abstract: Eleven platinum(II) carboxylato complexes of the general formula [Pt(*n*aza)$_2$(Mal)] **(1)**–**(3)**, *cis*-[Pt(*n*aza)$_2$(Dec)$_2$] **(4)–(7)**, [Pt(*n*aza)$_2$(EtMal)] **(8)** a **(9)** and *cis*-[Pt(*n*aza)$_2$(MEE)$_2$] **(10)** a **(11)** were synthesized and fully characterized; *n*aza = 7-azaindole derivatives, Mal = malonate dianion, Dec = decanoate anion, EtMal = ethylmalonate dianion and MEE = 2-[2-(2-methoxyethoxy)ethoxy]acetate anion. Compounds **(1)**–**(7)** were tested for their *in vitro* cytotoxicity against cisplatin sensitive (A2780) and resistant (A2780R) human ovarian carcinoma cell lines, normal human fibroblast cell line (MRC5) and primary culture of human hepatocytes (Hep). The complexes **(2)**, **(4)**, **(5)** and **(7)** were found to be more *in vitro* cytotoxic against the A2780 cells (IC_{50} = 13.0–24.4 μM) than the clinically used platinum-based drug cisplatin (IC_{50} = 26.3 μM). All the studied complexes **(1)**–**(7)** were effective against A2780R cell line (IC_{50} = 13.6–28.9 μM) and thus circumvented the acquired resistance of the cancerous cells against cisplatin (IC_{50} > 50.0 μM). Complexes **(3)** (A2780: IC_{50} = 26.6±8.9 μM; A2780R: 28.9±6.7 μM) and **(4)** (A2780: 14.5±0.6 μM; A2780R: 14.5±3.8 μM) seem to be the most pharmacologicaly promising ones, because these substances were not biologically active against MRC5 (IC_{50} > 50.0 μM for **(3)** and > 25.0 μM for **(4)**) and Hep (IC_{50} > 250.0 μM for **(3)** and **(4)**) non-cancerous cells within the tested concentration range. The obtained biological data show on selective biological effect of **(3)** and **(4)** against cancerous cells.

Keywords:	Platinum(II) complexes; 7-azaindole; Carboxylato; Synthesis; Characterization; *In vitro* cytotoxicity
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