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Research article

Synthesis of a series of new 6-nitrobenzofuran-2-carbohydrazide derivatives with cytotoxic and antioxidant activity

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ABSTRACT

6-nitrobenzofuran-2-carbohydrazide Schiff base derivatives have been synthesized and their structure has been confirmed *via* H^1NMR, Mass spectrometry and elemental (CHN/S) analysis. These synthesized analogs showed significant cytotoxic and antioxidant activity. Doxorubicin (IC_{50} = 0.94 ± 0.20 μM) and *n*-propyl gallate (IC_{50} = 30.30 ± 0.40 μM) were used as standard in cytotoxic and antioxidant activities, respectively. Compound **1** (IC_{50} = 3.30 ± 0.90 μM), **2** (IC_{50} = 2.70 ± 0.25 μM), **3** (IC_{50} = 2.70 ± 0.25 μM), **10** (IC_{50} = 2.70 ± 1.10 μM), **11** (IC_{50} = 1.00 ± 1.20 μM), and **17** (IC_{50} = 3.75 ± 0.90 μM) showed excellent while **21** (IC_{50} = 7.50 ± 0.60 μM) and **28** (IC_{50} = 7.50 ± 0.66 μM) showed moderate anti cancer activity. Furthermore, compound **10** (IC_{50} = 17.50 ± 0.85 μM), **11** (IC_{50} = 24.20 ± 0.55 μM), **12** (IC_{50} = 21.10 ± 1.58 μM), **13** (IC_{50} = 14.60 ± 0.32 μM), **14** (IC_{50} = 29.20 ± 0.75 μM) and **15** (IC_{50} = 9.26 ± 0.15 μM) showed better antioxidant activity than the standard *n*-propyl gallate. This study will be useful to develop potential lead molecules with cytotoxic and antioxidant potential.