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(71)Name of Applicant :

**1)HOLY CROSS COLLEGE (AUTONOMOUS), NAGERCOIL**

Address of Applicant :HOLY CROSS COLLEGE (AUTONOMOUS), NAGERCOIL,Roch Nagar, Kurisady, Nagercoil, Tamil Nadu- 629004, India  
NAGERCOIL -----

**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :

**1)Ms. S. Arul Mary**

Address of Applicant :Lecturer in Chemistry Department of Basic Engineering, Government Polytechnic College Nagercoil, Tamil Nadu NAGERCOIL -----

**2)Dr. Sheeba Daniel**

Address of Applicant :Assistant Professor Department of Chemistry Holy Cross College (Autonomous), Nagercoil NAGERCOIL -----

(57) Abstract :

The present patent specification elucidates the in vitro antiproliferative and cytotoxic properties of a novel [Ru(Cl-Ph-tpy)(Cl-tpy)]<sup>2+</sup> complex, featuring Cl-Ph-tpy (4'-(4-chlorophenyl)-2,2':6',2''-terpyridine) and Cl-tpy (4'-chloro-2,2':6',2''-terpyridine), on MDA-MB-231 breast cancer, HCT-116 colorectal cancer, and normal living L6 cell lines. The investigation utilized direct microscopic and MTT assay methodologies, with comprehensive spectral analysis employed for complex characterization. Notably, the determined IC<sub>50</sub> values against MDA-MB-231, HCT-116, and normal L6 cell lines were 67.72, 16.31, and 51.64 µg/mL, respectively. These findings underscore a pronounced antiproliferative effect on HCT-116 cells alongside reduced cytotoxicity on normal L6 cells. The observed dose-dependent inhibition of cell growth, as evidenced by formazan crystal formation, substantiates the compound's potential. Thus, the [Ru(Cl-Ph-tpy)(Cl-tpy)]<sup>2+</sup> complex emerges as a promising therapeutic candidate for colon cancer treatment, as outlined in this patent specification.

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