



Contribution ID: 91

Type: Poster Presentation

## Dicoma anomala enhances the zinc phthalocyanine tetrasulphonic acid (ZnPcS4) mediated photodynamic therapy in breast cancer cells

Breast cancer is a form of cancer that affects women and is regarded as the second leading cause of cancerrelated deaths. Phyto photodynamic therapy is a promising therapeutic approach adopted in cancer research, which uses plant-derived bioactive compounds in combination with photosensitizers to induce apoptosis in cancer cells. *Dicoma anomala* is an African medicinal plant, that is widely used in the treatment of various diseases. In this research, *D. anomala* extracts were used in combination with zinc phthalocyanine tetrasulphonic acid (ZnPcS4) to induce cell death in MCF-7 breast cancer cells. The cells were treated with different concentrations (25, 50 and 100  $\mu$ g/mL) of methanolic root extract and the dose response results were used to calculate the IC50 value.(85  $\mu$ g/mL). Morphological changes were observed using inverted microscope. The lactate dehydrogenase (LDH) cytotoxicity and ATP proliferation assays were performed to determine the cytotoxic effect of the extract and ZnPcS4 after 24 h of treatment. The morphological results showed a significant decrease in cell population while LDH level was increased and ATP levels were decreased in dying cells.. The outcome of this research suggests the potential medicinal benefits of *D. anomala* and ZnPcS4 in breast cancer treatment.

## Apply to be considered for a student ; award (Yes / No)?

Yes

## Level for award; (Hons, MSc, PhD, N/A)?

MSc

**Primary author:** Mr CHOTA, Alexander (Laser Research Centre, Faculty of Health Sciences, University of Johannesburg, John Orr Building, Doornfontein Campus, PO Box 17011, Doornfontein, 2028.)

**Co-authors:** Dr BLASSAN, George (Laser Research Centre, Faculty of Health Sciences, University of Johannesburg, John Orr Building, Doornfontein Campus, PO Box 17011, Doornfontein, 2028.); Prof. ABRAHAMSE, Heidi (Laser Research Centre, Faculty of Health Sciences, University of Johannesburg, John Orr Building, Doornfontein Campus, PO Box 17011, Doornfontein, 2028.)

**Presenter:** Mr CHOTA, Alexander (Laser Research Centre, Faculty of Health Sciences, University of Johannesburg, John Orr Building, Doornfontein Campus, PO Box 17011, Doornfontein, 2028.)

Session Classification: Photonics

Track Classification: Track C - Photonics