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## Linear polyamidoamine conjugate containing pamidronate and platinum drug: Characterization and *in vitro* cytotoxicity

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Drug delivery, using polymers as carriers, is one of the important areas of research that scientists are uncovering due to the belief that they help improve drug efficacy. Chemotherapy is an effective treatment for breast cancer, but due to the side effects that result from the drug not only targeting the cancerous cells but also the quick dividing cells of the system, patients become extremely sick before they could get cured. In this paper, we investigate the hypothesis that pamidronate and platinum complexes could be conjugated with linear poly(amidoamine)s (PAMAM) in order to improve drug efficacy and this is a possibility because of the physicochemical properties of PAMAM such as: They are pH-responsive, precise direct targeting of the drug to the infected cells, meaning that only the infected cells would be treated. The conjugates were synthesised by Michael-addition process and characterised using SEM; TEM; AFM; FTIR and EDS in order to determine the occurrence of conjugation. *In-vitro* viability assay was done using HeLa and MCF-7 cell lines. EDS and FTIR confirmed the conjugation of the drugs to the polymer and viability assay confirmed that the conjugates are not toxic to the cells. Therefore, the results obtained from this experiment prove that there is potential for PAMAM to be used as drug delivery for cancer cells, however further characterisation and *in-vitro* tests would need to be conducted before further steps are taken.

### Biography

Abongile Ndamase is currently studying Master's in Polymer Technology at Tshwane University of Technology. She has a BTech Biotechnology that she obtained from Vaal University of Technology. In 2014, she did an internship in Counsel of Scientific and Industrial Research (CSIR), that is when she became a co-author to a publication.

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