

Abstract

Photodynamic therapy (PDT) is a minimally invasive, alternative treatment method that can be utilized in anti-cancer treatment. Although clinically approved its not commonly used, yet possess a great potential of being developed into a mainstream anti-cancer treatment procedure. PDT uses a photosensitizer (PS) which is photoactivated on illumination by light of appropriate wavelength, at the presence of oxygen, a series of photochemical reactions produce reactive oxygen species (ROS), triggering various mechanisms leading to cell death in tumor cells. This literature survey has looked into major aspects of PDT and their functions. The chemical background of PS and the caused photochemical reactions were reviewed along with the cell death pathways which are initiated due to the resulting toxicity from the reactions. Implementation of PDT in anti-cancer therapy and the sides effects, both early and late onset are elaborated at length. This literature survey has carefully reviewed the all the available literature to summarize the benefits, drawbacks and limitations of photodynamic therapy. The modern approaches made to achieve improved therapeutic efficacy via monitoring, various cellular and molecular processes through fluorescent imagery, tissue oxygenation, photobleaching and also implementing targeted delivery methods for the effective delivery of PS were described in detail in this review project.