

UPCONVERSION PHOSPHATE PHOSPHORS FOR APPLICATIONS IN PHOTODYNAMIC THERAPY

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Phosphates materials have a wide range of applications and they have been extensively studied. They have been used for various functions such as ceramic materials, catalysts, adsorbent, fluorescent materials, biomaterial, food additives, pigments and detergents. Most of phosphates are biocompatible, they are not recognized as foreign materials in the body. With their high biocompatibility and good surface properties, synthetic phosphates materials have promising applied potential in biomedicine. Inorganic phosphates based compounds with the general formula $M_5(PO_4)_3X$ ($M = Ca, Sr, Ba$ and $X = Cl, F, OH$) are now considered as excellent host for preparation of phosphors materials due to high chemical and thermal stability. They can accommodate a great variety of foreign cations such as transition metal and rare earth ions with different ionic radii. Addition of rare earth elements to these phosphates gives higher luminescent properties to the material. This in turn, makes them the good phosphors for applications in different light emitting devices and radiation oncology (the use of radiation therapy to treat cancer). The study is be focused on the preparation of different inorganic phosphate phosphors for applications in photodynamic therapy.

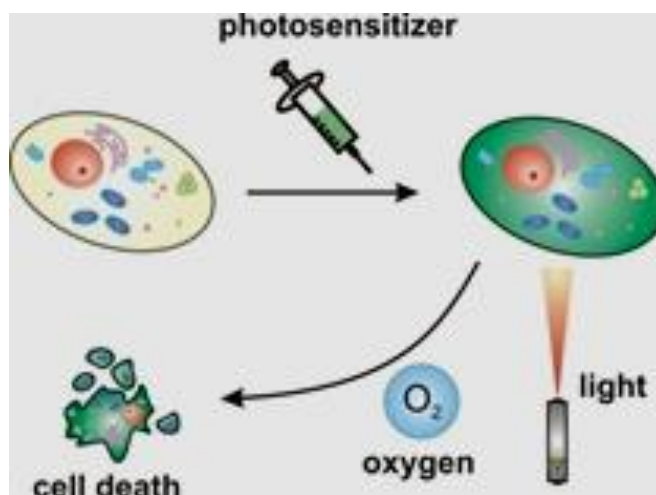


Figure 1. Photodynamic treatment