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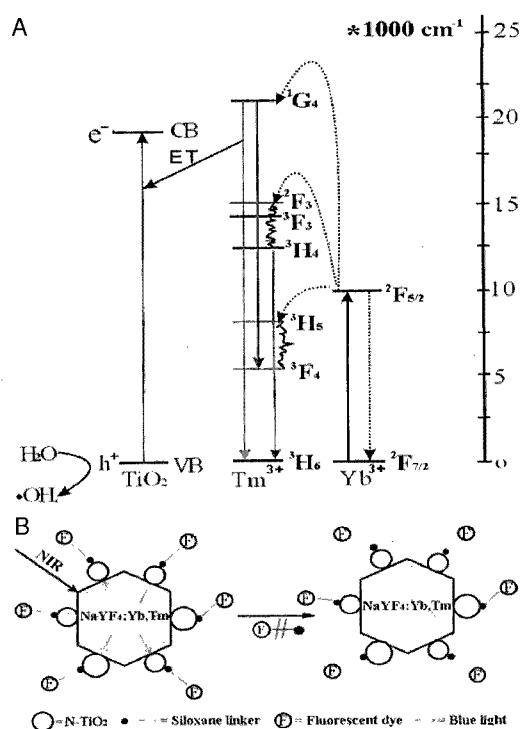
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(54) Title: SYNTHESIS OF UPCONVERSION NANOCOMPOSITES FOR PHOTODYNAMIC THERAPY

FIG. 5



(57) Abstract: The present invention refers to a composite material including at least one upconversion particulate material that under near infrared (NIR) irradiation emits visible light of a wavelength between 380 and 740 nm, and at least one semiconductor particulate material that can absorb the visible light emitted by the at least one upconversion particulate material and upon absorbance generates reactive species, wherein the at least one upconversion particulate material and the at least one semiconductor particulate material are physiologically acceptable. The upconversion particulate material can comprises NaYF4 doped with a one rare earth metal. The bright fluorescence emitted from rare earth-doped NaYF4 upconversion particles is in the visible region of the electromagnetic spectrum and may be absorbed by a biocompatible photocatalysts such as TiO₂ to produce reactive species. This allows the composite to be used for in vivo applications.



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