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Physicochemical properties of water soluble unsymmetrical phthalocyanine-folic acid conjugates.

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Abstract.

This work reports on the successful chemical linkage of folic acid (FA) to Zn mono carboxyphenoxy phthalocyanine (**1**) and Zn mono carboxyphenoxy tri-(*tert*-butyl) phthalocyanines (**2**). The amide bond linkage of FA to Pc as achieved for the first time through the FA-NH₂ and Pc-COOH as confirmed using FTIR, MS, elemental analysis and NMR. The linked conjugates were found to be water soluble compared to the physical mixtures of FA and Pc, which allowed for studies of singlet oxygen in water. The Pc-FA linked conjugates (**1**-FA and **2**-FA) were found to be singlet oxygen generators with the following singlet oxygen quantum yields: **1**-FA = 0.61 and **2**-FA = 0.47 in DMSO and **1**-FA = 0.17 and **2**-FA = 0.12 in water.

Keywords: Unsymmetrical zinc phthalocyanine, folic acid, triplet quantum yield, triplet state quantum yield, amide bond.

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