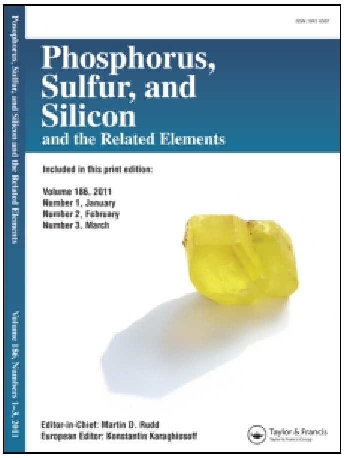

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Synthesis of μ-Oxobridged Phosphorus/Aluminum Heterodinuclear Porphyrins and the Fluorescence Behavior

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SYNTHESIS OF μ-OXOBRIDGED PHOSPHORUS/ALUMINUM HETERODINUCLEAR PORPHYRINS AND THE FLUORESCENCE BEHAVIOR

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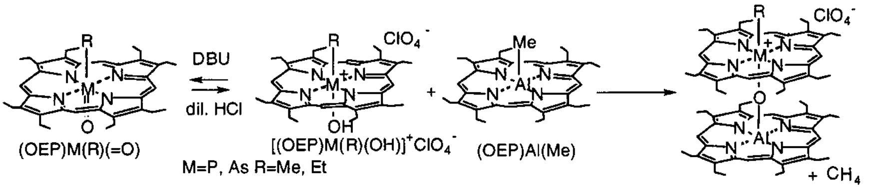
Recently we developped a new synthetic method of μ-oxobridged group 15 element/aluminum heterodinuclear porphyrin.[1] The method is based on the fact that the hydroxy proton of $[(OEP)M(R)(OH)]^+X^-$ (M=P, As) is relatively acidic because of the formation of stable M=O double bonded compounds, (OEP)M(R)(=O). The acidic hydroxy group in $[(OEP)M(R)(OH)]^+X^-$ was reactive enough toward (OEP)AlMe to give $[(OEP)M(R){-}O{-}(OEP)Al]^+X^-$ in good yields in spite of the anticipated steric hindrance.



SCHEME 1

Although UV-vis spectrum of $[(OEP)P(Et){-}O{-}Al(OEP)]^+ClO_4{}^-$ did not show much difference from that of the corresponding $[(OEP)P(Et)(OH)]^+ClO_4{}^-$, the fluorescence spectra were totally different in these compounds. The red-shifted emission band and the very weak intensity in the dinuclear porphyrin strongly indicated the intramolecular exciplex formation between the two porphyrin rings.

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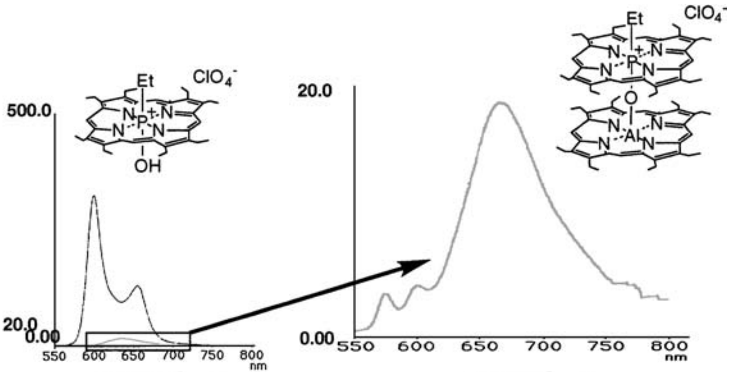

3.34 × 10^{-5} mol/l

2.14 × 10^{-5} mol/l

FIGURE 1 Fluorescence spectra in CH_2Cl_2 (ex 532 nm).

REFERENCE

[1] G. Yamamoto, R. Nadano, W. Satoh, Y. Yamamoto, and K.-y. Akiba, *Chem. Commun.*, 1325 (1997).