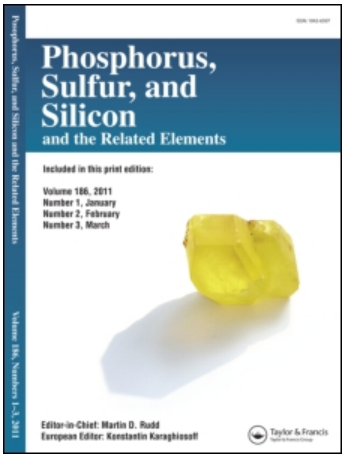

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New α-Functionalized Phosphorus Acid Surfactants: Synthesis, Dissociation Constants and Molecular Aggregation

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New α-Functionalized Phosphorus Acid Surfactants : Synthesis, Dissociation Constants and Molecular Aggregation

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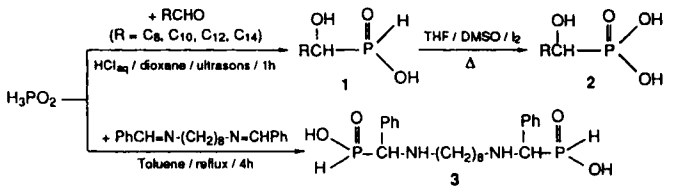
Pursuing our investigation into the reactivity of red phosphorus, its hydrolysis derivatives (PH_3 and H_3PO_2),[1,2] and P-H labile compounds,[3] we report here a convenient method for the direct synthesis of free α-hydroxyalkyl phosphinic acid surfactants from aqueous hypophosphorous acid and the long-chain aldehydes or imines under sonication.



The acids **1-3** can be considered as relatively strong acids and their extractant properties are under investigation. Self-association behavior of their ammonium salts shows the formation of micelles for the single-chain amphiphiles **1-2** and of vesicles for the bolaform **3**. The dissociation constants and the critical micellar concentrations (CMC) are determined by potentiometry, tensiometry and ^{31}P NMR.

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