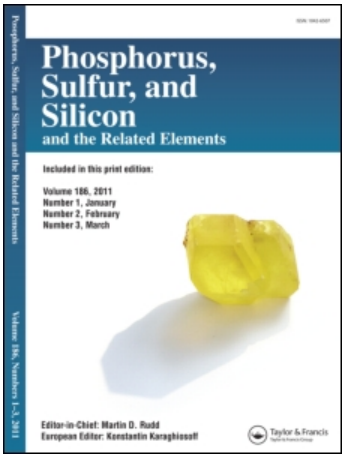

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Novel Reaction of Linear Phosphates with cyclo -Phosphate in Coacervate

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NOVEL REACTION OF LINEAR PHOSPHATES WITH *CYCLO*-PHOSPHATE IN COACERVATE

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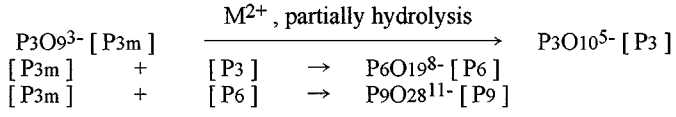
Phosphorus pentaoxide, and various organic phosphorus compounds have been used as phosphorylating agents for organic and bioorganic compounds. Feldmann reported that phosphorylation of alkylamines[1] and alcohols[2] can be effected by the use of *cyclo*-triphosphate (P_{3m}). Rabinowitz reported that amino acids (glycine and alanine) condense to form oligopeptides in the presence of polyphosphate or P_{3m}. Recently, we found that some linear phosphates were characteristically formed through the decomposition processes of P_{3m} in coacervate. The contents of various linear phosphates formed were affected by coexistent metal ions, the fraction of water/organic solvent, standing time, and so on. As a part of our developmental work on the application of P_{3m} as a phosphorylating agent, the present authors investigated the reaction of P_{3m} or other *cyclo*-phosphates with a metal ion and phosphate in coacervate. The formation mechanisms were also discussed from the viewpoint of ring-opening of *cyclo*-triphosphate and stability of the resulting product in coacervate. The favorable metal ions to ring-opening were Mg^{2+}, Co^{2+}, and Ni^{2+} ions. However, Mg^{2+} ion acted as a hydrolysis agent of *cyclo*-triphosphate and linear phosphates, resulted in the disappearance of selective formation of linear phosphates. The proposal reaction mechanisms in coacervate were shown as follows:



SCHEME 1

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[2] W. Feldmann, *Chem. Ber.*, **100,** 3850 (1967).