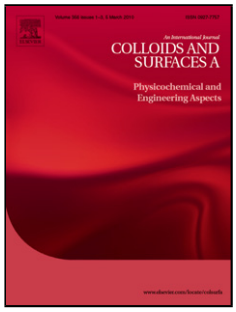

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Short chain polyphosphates as a strategic colloidal source of phosphate for parenteral admixtures

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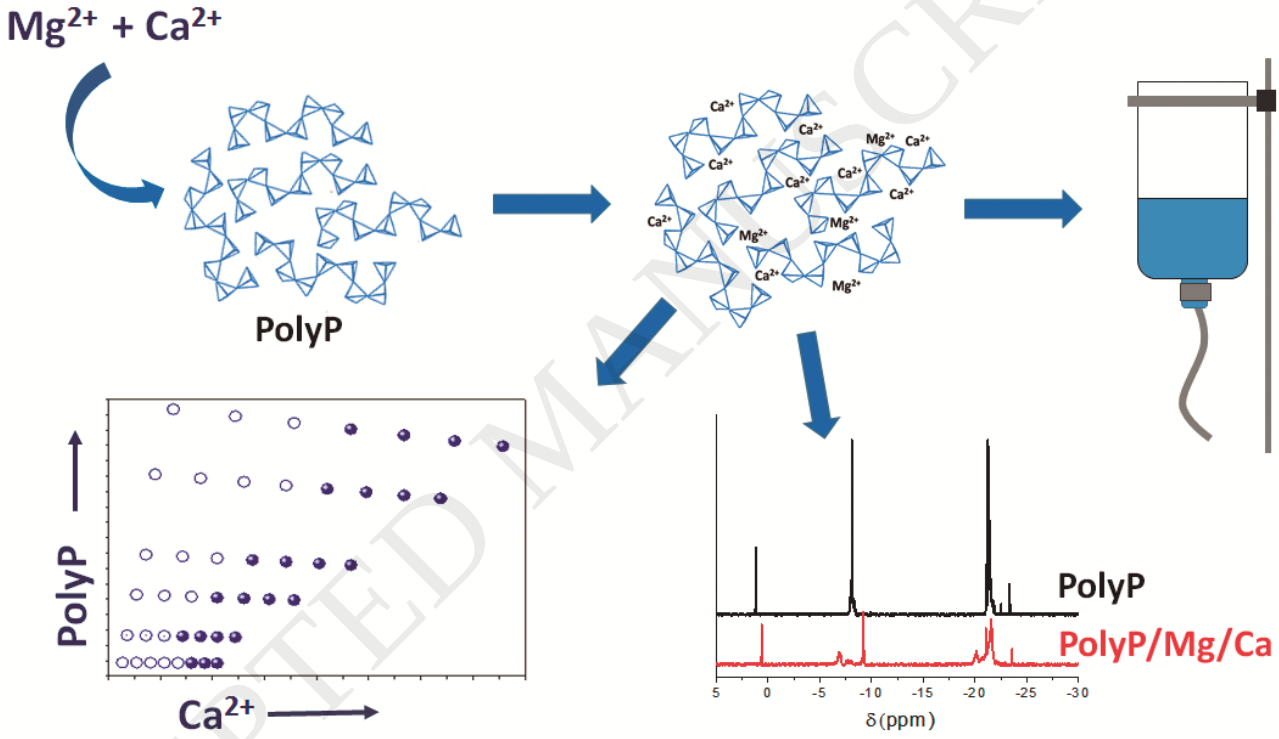
Graphical abstract



Abstract

Short chain sodium polyphosphates – $(NaPO_3)_9$ – PolyP – were added to 2-in-1 pediatric parenteral nutrition (PN) formulations as new alternative phosphate sources. Solutions of PolyP and Ca^{2+} in the presence of Mg^{2+}, glucose, amino acids and trace elements were analyzed by electronic absorption and ^{31}P NMR spectroscopies, as well as by pH measurements. Additionally, to verify the biocompatibility of short chain PolyP solutions, red blood cell (RBCs) units were evaluated by analyzing hemoglobin, hematocrit, and hemolysis. The blood clotting action of the PolyP was determined through Prothrombin time. We observed that the short chain PolyP anions did not interfere in the quality control