Potentiometric study of 2, 2´ bipyridine-citric acid proton-transfer system and its complexation with VO^{2+} ion in aqueous solution

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The proton-transfer systems including pyridine bases and dicarboxylic acids in aqueous solution and solid states were too considered in recent decade [1, 2], but the bipyridine as base in these systems has been less attention [3]. Also there isn´t any report about of the complexation of these bases systems with VO^{2+}.

In this work the protonation constants of 2, 2´ bipyridine and citric acid as the building blocks of the proton- transfer system and the stability constants of this system were determined by potentiometric studies. The overall stability constant, logarithm of β-values, of all species present were evaluated by computer refinement of pH-Volume data using the BEST computer program. The concentration distribution diagrams of binary and mixed system was obtained in terms of percent VO^{2+} ion as a pH function by hyss program. It is interesting to note that the stoichiometries of the some of the most abundant ternary complexes, existing in aqueous solution, are the same that reported for the corresponding isolated complexes in the solid state.

Keywords: 2, 2´ Bipyridine, Potentiometric study.

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