

Abstract

This bachelor work focuses on studies of chosen aspects of the basic physicochemical properties of oxamic and glyoxylic acids and their affinity to lanthanides, cerium, and gadolinium taken as the representatives. Room temperature solubilities, pKa values, thermal and photochemical stability of the acids have been evaluated. The acids' affinity to lanthanide (III) ions in an aqueous solution has been studied using various conventional laboratory techniques and instrumental methods. Lanthanide oxalate decahydrates have been synthesized using heterogeneous and homogeneous precipitation routes and characterized using classical solid-state analytical techniques.

Keywords: oxalic acid precipitation, oxamic acid, oxamates, oxalates, glyoxylic acid, f-block metals chemistry