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Stabilities of Complexes of Scandium(III) and Yttrium(III) With Salicylic Acid

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Abstract: The interactions of Sc(III) and Y(III) ions with salicyclic acid, SA (H_2L), were studied in aqueous solution by means of potentiometric and spectroscopic methods. The binding of SA occurs in Y (III):SA system, either in (1:1) or (1:2) mole ratios. The stability constants of the mono protonated complex, YHL^{2+}, and $Y(HL)_2^+$ type complex were calculated. The coordination of Sc(III) to SA was defined by means of Job's plot and its formation curve. The stability constants of ScL^+ and Sc(HL)L type complexes were determined by analysis of the potentiometric data; the coordination of SA to Sc(III) occurred through carboxylate and phenolic oxygens. The existence of hydrolytic reactions of Sc(III) and Y(III) complexes of SA were defined from potentiometric data and related equilibrium constants were also defined.

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