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Development of Highly Ion Selective Organic Reagents and Their Application on Metal Ion Separation and Determination

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Summary

Polyether derivatives incorporating oxygen atom, which is hard donor atom, are well known to associate with hard metal ions, such as alkali metal and alkaline earth metal ions. On the other hand, soft metal ions, especially, class *b* group metal ions, form stable complexes with polythioethers and/or polyamines, that is, soft metal ions prefer to soft donor atoms, such as sulfur and nitrogen atoms. A few mixed-donor acyclic polyethers containing sulfur and nitrogen atoms have been presented.

In this study, nine simple acyclic polyethers, 1-3, incorporating oxygen, nitrogen and/or sulfur atoms, and bearing heterocyclic groups at both ends of the polyether chain were synthesized. The solvent extraction of some heavy metal ions with these polyethers were carried out to estimate the metal ion complexabilities of the compounds. And some polyethers having metal ion extractability were employed as the neutral carriers for ion-selective electrodes.

