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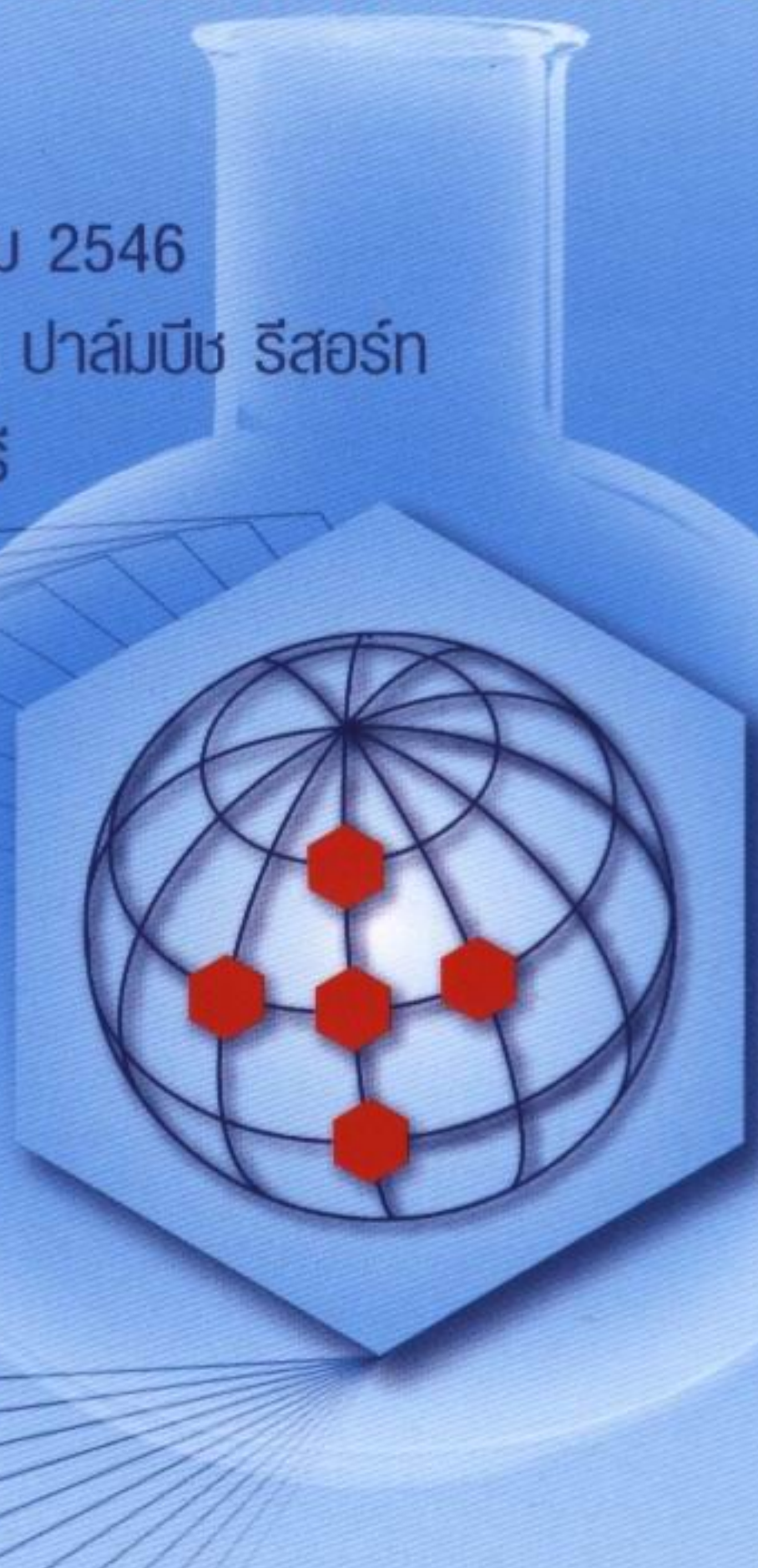

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Separation of Silver(I) by 4-(2′-Benzothiazolylazo)-3,5-Dimethylpyrazole Chelating Resins

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Objective

To separate Ag(I) from aqueous waste by prepared 4-(2′-Benzothiazolylazo)-3,5-Dimethylpyrazole Chelating Resins.

Methods

4-(2′-Benzothiazolylazo)-3,5-dimethylpyrazole (BTADMP) was synthesized by the coupling reaction between 2-aminobenzothiazole and 3,5-dimethylpyrazole. BTADMP was immobilized on polystyrene divinylbenzene by using 1:1 dimethylfomamide and triethylamine as solvent. The ability of 4-(2′-benzothiazolylazo)-3,5-dimethylpyrazole chelating resins (P-BTADMP) for sorption of Ag(I) as function of pH, shaking time and concentration of Ag(I) were determined and compared with Amberlite IR-120. The distribution coefficient of P-BTADMP for various metal ions such as Pd(II), Pt(IV), Au(III), Cd(II), Pb(II), Cu(II), Cr(III), Ni(II) and Zn(II) were also determined.

Results

The IR, NMR, MS and elemental analysis of 4-(2′-benzothiazolylazo)-3,5-dimethylpyrazole (BTADMP) were obtained. The P-BTADMP chelating resin has ability to adsorb Ag(I) at wider pH range compared with Amberlite IR-120. P-BTADMP has higher selectivity towards the precious metal ions than Amberlite IR-120.

Conclusion

4-(2′-Benzothiazolylazo)-3,5-dimethylpyrazole chelating resin (P-BTADMP) was synthesized. P-BTADMP has ability to adsorb Ag(I) at various pH. P-BTADMP can be used as sorbent for the separation of Ag(I) from aqueous solution.

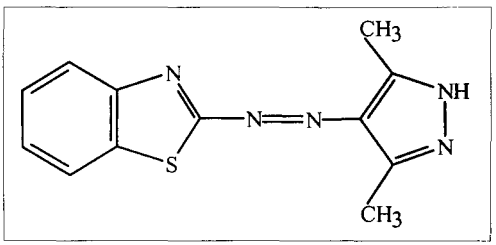

Figure of 4-(2′-Benzothiazolylazo)-3,5-dimethylpyrazole.

Keywords: silver(I), 4-(2′-benzothiazolylazo)-3,5-dimethylpyrazole, chelating resin

Selected References:

1. Liu, B., Gao, H., Liu, J., & Zhou, X. (1994). *Hangzhou Daxue Xuebao, Ziran Kexueban, 21*(1), 63-67.
2. Ma, W., Chen, H., Bu, R., Wang, Z., & Wang, J. (2000). *Huaihai Gongxueyuan Xuebao, 9*(3), 50-53.