



Diethyldithiocarbamate Doped Graphene Quantum Dots Based Metal Complex Nanoparticles by Resonance Light Scattering for Green Detection of Lead(II) (A Review)

CHAYANEE KAEWPROM¹, PRAWIT NUENGMATCHA² and SAKSIT CHANTHAI^{1*}

¹Materials Chemistry Research Center, Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand.

²Nanomaterials Chemistry Research Unit, Department of Chemistry, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat 80280, Thailand.

*Corresponding author E-mail: sakcha2@kku.ac.th

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ABSTRACT

Resonance light scattering (RLS) probe for sensitive determination of heavy metals such as lead (Pb) based on diethyldithiocarbamate (DDTC) doped graphene quantum dots (GQDs) is subject to approach on green procedure of metal complex nanoparticles. Regarding Pb(II), the RLS intensity of GQDs-DDTC increases linearly by an enhancement mechanism. Interactions between target analyte and the ligand doped nanoparticles lead to an aggregation of the complex particles to form bigger volume of the metal complex. Thus, it can be used as the RLS probe for such determination of lead ion at ultra-trace level, certainly under the optimum conditions; such experimental parameters including each of DDTC and GQDs concentration, pH of solution, ionic strength, masking agent, and interfering ions are investigated in details. The methods can then be implied for selective determination of some relevant toxic heavy metals in water, foods or environment samples.

Keywords: Diethyldithiocarbamate, Resonance light scattering, Graphene quantum dots, Heavy metals, Nanoparticles.

INTRODUCTION

At present, concerning an environmental pollution via systematic monitoring of heavy metals in water and/or even if other foodstuffs involved is

very important to protect human public health. Among the different environment from various industrial activities, lead ion is one of the main toxic metals that can be taken, and it can then be accumulated in the human body throughout the



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