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Author: Nyi Nyi Naing Sam Fong Yau Li Hian Kee Lee

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Electro Membrane Extraction Using Sorbent Filled Porous Membrane Bag.

Nyi Nyi Naing [a,b], Sam Fong Yau Li [a,b], Hian Kee Lee [a,b,*]

[a] Department of Chemistry, National University of Singapore, 3 Science Drive 3, Singapore 117543

[b] National University of Singapore Environmental Research Institute, T-Lab # 02-01, 5A Engineering Drive 1, Singapore 117411

[*]Corresponding author. Tel.: +65 6516 2995; fax: +65 6779 1691.

Email address: chmleehk@nus.edu.sg (H.K. Lee)

Abstract

Electro membrane extraction-solid-liquid phase microextraction (EME-SLPME) was developed for the first time to determine phenolic contaminants in water. The extraction system consisted of a solid/liquid interface that permitted a three-phase microextraction approach involving an aqueous sample (donor phase): an organic solvent-sorbent within a membrane bag, and an organic solvent (extractant phase), operated in a direct immersion sampling system. The sorbent, reduced graphene oxide/polyvinyl alcohol (r-GO/PVA), synthesized using graphene oxide and polyvinyl alcohol by dispersing the graphene oxide in polyvinyl alcohol and chemically reducing it in aqueous solution. The prepared sorbent was dispersed in 1-octanol and the solution was immobilized by sonication in the membrane bag wall pores which was in contact with the aqueous donor solution and organic extractant solvent (1-octanol) in the main bag itself. The analytes were transported by application of