

Setyawan, S.A, 2015, Penentuan Kadar N-Nitrosodietilamin (NDEA) dalam Telur Asin dengan Menggunakan Metode *Cone Shaped Membrane-Liquid Phase Microextraction-Gas Chromatography-Flame Ionization Detector* (CSM-LPME-GC-FID). Skripsi di bawah bimbingan Dra. Usreg Sri Handajani, M.Si. dan Dra. Aning Purwaningsih, M.Si. Departemen Kimia Fakultas Sains dan Teknologi Universitas Airlangga, Surabaya.

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## ABSTRAK

*Cone shaped membrane-liquid phase microextraction* (CSM-LPME) merupakan metode preparasi sampel yang tergolong cepat, ramah lingkungan, selektif, sensitif dan mudah. Pada penelitian ini menggunakan metode CSM-LPME untuk analisis senyawa N-nitrosodietilamin (NDEA) dalam telur asin menggunakan instrumentasi kromatografi gas dengan detektor FID (*flame ionization detector*). Hasil optimasi parameter analitik dengan metode CSM-LPME antara lain etil asetat sebagai pelarut organik, waktu ekstraksi 20 menit, dan volume sampel 20 mL. Dengan menggunakan parameter analitik tersebut dihasilkan kurva standar linier untuk larutan standar NDEA 50-90 ppm dengan nilai koefisien korelasi ( $r$ ) kurva standar yang diperoleh = 0,999. Hasil validitas metode diperoleh limit deteksi 29,12 ppm, *recovery* sebesar 99,93%, koefisien variasi antara 0,26%-2,49%, dan faktor pemekatan 6.667,73 kali. Berdasarkan hasil analisis yang telah dilakukan, senyawa NDEA dalam sampel telur asin yang dalam pembuatannya tanpa penambahan  $KNO_3$  maupun dengan penambahan  $KNO_3$  tidak dapat terdeteksi.

**Kata kunci** : *Cone shaped membrane-liquid phase microextraction, Gas chromatography-flame ionization detector, N-nitrosodietilamin*

Setyawan, S.A, 2015, Determination of *N-Nitrosodiethylamines* (NDEA) in salted egg with Method *Cone Shaped Membrane-Liquid Phase Microextraction-Gas Chromatography-Flame Ionization Detector* (CSM-LPME-GC-FID. Script were counseled by Dra. Usreg Sri Handajani, M.Si. and Dra. Aning Purwaningsih, M.Si. Department of Chemistry, Faculty Science and Technology, Airlangga University, Surabaya.

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### ABSTRACT

Cone shaped membrane - liquid phase microextraction ( CSM - LPME ) is a rapid sample preparation method , environmentally friendly , selective, sensitive and easy . In this research use CSM - LPME method for the analysis of N - nitrosodiethylamines ( NDEA ) in salted egg using gas chromatography with flame ionization detector (FID) . The results of the analytical parameter optimization with CSM - LPME method are ethyl acetate as organic solvent, extraction time of 20 minutes, and sample volume of 20 mL. By using the analytical parameters produced a linear standard curve for the standard solution NDEA 50-90 ppm with the value of the correlation coefficient (  $r$  ) standard curve obtained = 0.999. The result of validity method is detection limit of 29,12 ppm , recovery of 99.93 % , coefficient of variation of 0.26 % -2,49 % , and the enrichment factor of 6667.73. Based on the results of the analysis has been carried out , the NDEA compound in the production of salted egg samples without the addition of  $KNO_3$  and with the addition of  $KNO_3$  can not be detected.

**Keyword** : *Cone shaped membrane-liquid phase microextraction, Gas chromatography-flame ionization detector, N-nitrosodiethylamines*