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**Determination of ammonia nitrogen in solid and liquid high-complex matrices
using one-step gas-diffusion microextraction and fluorimetric detection**

Inês M. Valente^{a,b*}, Hugo M. Oliveira^{a1}, Carlos D. Vaz^b, Rui M. Ramos^b, António J. M. Fonseca^a, Ana R. J. Cabrita^a, José A. Rodrigues^b

^aREQUIMTE/LAQV – Departamento de Clínicas Veterinárias, Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto, Rua de Jorge Viterbo Ferreira no. 228, 4050-313 Porto, Portugal.

^bREQUIMTE/LAQV – Departamento de Química e Bioquímica, Faculdade de Ciências, Universidade do Porto, Rua do Campo Alegre no. 687, 4169-007 Porto, Portugal.

*Corresponding Author: Departamento de Química e Bioquímica, Faculdade de Ciências, Universidade do Porto, Rua do Campo Alegre, no 687, 4169-007 Porto, Portugal.

(tel.) +351 220 402 646; (fax) +351 220 402 659;

(e-mail) ines.valente@fc.up.pt

Abstract

This paper introduces a new method for a one-step determination of ammonia nitrogen (NH_3) in high complex solid and liquid samples from the agricultural and livestock sectors. To this end, we developed a simultaneous extraction and fluorimetric labeling of NH_3 , using gas diffusion microextraction (GDME), followed by the fluorescence measurement under 96-well microplate format. The GDME ensured a selective diffusion of NH_3 through a commercial hydrophobic membrane, and confined the acceptor solution, which included the fluorimetric labeling reagent *o*-phthalaldehyde (OPA). The OPA- NH_3 labeling reaction was optimized resorting to a full factorial

¹ Present address: INL, International Iberian Nanotechnology Laboratory, Av. Mestre José Veiga s/n, 4715-330 Braga, Portugal.

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