



Analysis of agmatine in shrimps by fluorescence method

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Introduction

Biogenic amines are compounds containing nitrogen and naturally present in animals and certain plants. They are derived from enzymatic degradation of amino acids or from microbial degradation of protein foods¹. At low concentrations, biogenic amines have important physiological functions. However, in high doses these amines become toxic². In the face of food poisoning caused by their presence in foods, it is necessary to develop a reliable, accurate and lower cost analysis method for their determination in food products. In this work we developed a new spectrofluorometric method for agmatine determination in shrimp after derivatization with orthophthalaldehyde (OPA).

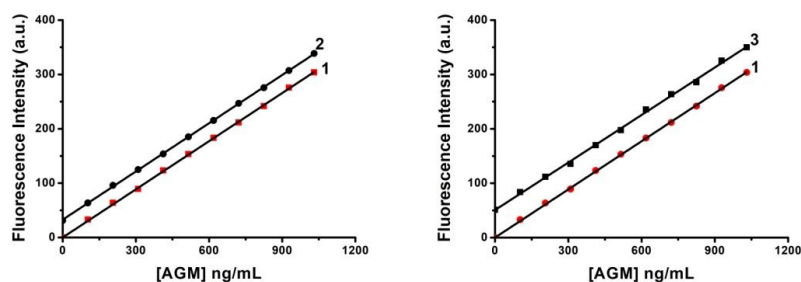
Materials and Methods

Fluorimetric analyzes were made using a Varian Cary Eclipse fluorescence spectrophotometer. This method required solid phase extraction (SPE) with 6% trichloroacetic acid (TCA). Analytical applications were evaluated using the standard addition method (figure 1).

Results and Discussion

The analysis of agmatine was performed in aqueous medium at pH 13 after 20 minutes of agitation. We obtained satisfactory analytical performances with very low limits of detection and quantification (2.2 ng/mL and 5.4 ng/mL respectively). The correlation coefficients are close to unity and the very low relative standard deviation (RSD) values indicate good precision and reproducibility of the method. This method was applied to the analysis of agmatine in gambas and bouquets to evaluate its effectiveness. Very satisfactory recovery rate ranging from 96.3% and 103.4% were found.

Figure 1 : Straight calibration curve of agmatine (1); Standard addition curve of these samples in shrimp: bouquet (2), and gambas (3).



Conclusion

In this study, we have shown that the fluorescence method is simple, fast and easy to analyze agmatine. Satisfactory results were found by applying this method to the determination of agmatine in shrimp.

Bibliography

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