

## Accepted Manuscript

Title: Microwave assisted synthesis for A2E and development of LC-ESI-MS method for quantification of ocular bisretinoids in human retina

Authors: Kotnala A., Senthilkumari S., Halder N., Kumar A., Velpandian T.



PII: S1570-0232(17)30674-8  
DOI: <https://doi.org/10.1016/j.jchromb.2017.11.021>  
Reference: CHROMB 20918

To appear in: *Journal of Chromatography B*

Received date: 17-4-2017  
Revised date: 13-11-2017  
Accepted date: 17-11-2017

Please cite this article as: A.Kotnala, S.Senthilkumari, N.Halder, A.Kumar, T.Velpandian, Microwave assisted synthesis for A2E and development of LC-ESI-MS method for quantification of ocular bisretinoids in human retina, *Journal of Chromatography B* <https://doi.org/10.1016/j.jchromb.2017.11.021>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Microwave Assisted Synthesis for A2E and Development of LC-ESI-MS Method for Quantification of Ocular Bisretinoids in Human Retina

Kotnala A<sup>1</sup>, Senthilkumari S<sup>3</sup>, Halder N<sup>1</sup>, kumar A<sup>2</sup>, Velpandian T<sup>1\*</sup>

<sup>1</sup> Ocular Pharmacology & Pharmacy, <sup>2</sup> Department of Ophthalmology, Dr. Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi, <sup>3</sup>Department of Ocular Pharmacology, Aravind Medical Research Foundation, Madurai, Tamilnadu, INDIA.

\* **Thirumurthy Velpandian, (Corresponding Author)**

Ocular Pharmacology & Pharmacy Division,  
Dr. Rajendra Prasad Centre for Ophthalmic Sciences,  
All India Institute of Medical Sciences,  
Ansari Nagar,  
New Delhi-110029, INDIA

Email id- tvelpandian@hotmail.com

## Highlights

- Microwave Synthesis of A2E and Quantification of Retinal Bisretinoids

## Abstract :

**Purpose:** To develop a microwave assisted method for the rapid synthesis of A2E and also to develop a method to quantify N-retinylidene-N-retinylethanolamine(A2E), all-trans retinal dimer (ATRD), A2-glycerophospho ethanolamine (A2GPE), dihydropyridine phosphatidyl ethanolamine (A2DHPE) and monofuran A2E (MFA2E) in age matched retina.

**Methods:** The development of microwave assisted synthesis of A2E, its purification and Characterization for its utility in quantification in human retina. The semi-quantitative method development using LC-ESI-MS, LC-ESI-MS/MS and LC-APCI-MS/MS from pooled macula and peripheral retina for the bisretinoid analysis has been done.

**Results:** Maximum A2E conversion using microwave assisted process took place at 80 °C for 45 min with a yield of 55.01%. Highly sensitive and specific mass spectrometric method was developed using reverse phase C-18 separation with positive electrospray ionization and positive atmospheric phase chemical ionization of tandem mass spectrometry. A gradient mobile phase separation was achieved using water and methanol with 0.1% TFA. Multiple reaction monitoring acquisition for ESI and APCI was performed at ATRD m/z 551.2/522.2, A2GPE m/z 746.4/ 729.5, A2DHPEm/z 594.4/576.5, MFA2E m/z 608.2/591.2, A2E m/z 592.4/ 418.2. Method was validated using LC-ESI-SIM mode to determine selectivity, linearity, sensitivity, precision and accuracy.

Download English Version:

<https://daneshyari.com/en/article/7615476>

Download Persian Version:

<https://daneshyari.com/article/7615476>

[Daneshyari.com](https://daneshyari.com)