## **ORIGINAL ARTICLE**



## RETRACTED ARTICLE: Evaluating the neuroprotective effect of *Spirulina platensis*—loaded niosomes against Alzheimer's disease induced in rats

Asmaa K. Abdelghany<sup>1</sup> · Amr Gamal<sup>2</sup> · Ahmed Abdel-Wahab<sup>3</sup> · Abdel-Razik H. Abdel-Razik<sup>4</sup> · Salma.I. El-Samannoudy<sup>5</sup> · Marwa A. Ibrahim<sup>6</sup> · Walid Hamdy Hassan<sup>7</sup> · Fatma I. Abo El-Ela<sup>8</sup>

Accepted: 18 January 2023 / Published online: 15 February 2023 © The Author(s) 2023

The Editor-in-Chief has retracted this article. After publication, concerns were raised regarding image overlap in the presented figures. Specifically:

Fig. 1 TEM images appear to contain multiple highly similar areas.

Fig. 8 a4 and b1 appear to contain an overlapping area. Fig. 9 d4 image appears to contain two highly similar

The authors have stated that the images in Fig. 1 originated from the same source image. They have also provided raw data to address these concerns; however, the same similarities were found in the raw data files by the publisher. The Editor-in-Chief therefore no longer has confidence in the presented data.

None of the authors agree to this retraction.

The online version of this article contains the full text of the retracted article as Supplementary Information. **Supplementary Information** The online version contains supplementary material available at: https://doi.org/10.1007/s13346-023-01301-2.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <a href="https://creativecommons.org/licenses/by/4.0/">https://creativecommons.org/licenses/by/4.0/</a>.

□ Fatma I. Abo El-Ela
Fatma.aboel3la@vet.bsu.edu.eg; fa.pharma@yahoo.com

Asmaa K. Abdelghany Asmaa.kamal@vet.bsu.edu.eg

Amr Gamal Amr\_g@pharm.bsu.edu.eg

Ahmed Abdel-Wahab ahmed.abdelwahab@mu.edu.eg

Abdel-Razik H. Abdel-Razik abdelrazak.osman@vet.bsu.edu.eg

Salma.I. El-Samannoudy Salma.elsamanoody@vet.cu.edu.eg

Marwa A. Ibrahim Marwaibrahim@cu.edu.eg

Walid Hamdy Hassan walidhamdyhassan@yahoo.com

- Animal and Poultry Management and Wealth Development Department, Faculty of Veterinary Medicine, Beni-Suef University, Beni-Suef 62511, Egypt
- Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Beni-Suef University, Beni-Suef, Egypt
- Department of Physiology, Faculty of Veterinary Medicine, Minia University, El-Minia, Egypt
- Department of Histopathology, Faculty of Veterinary Medicine, Beni-Suef University, Beni-Suef 62511, Egypt
- <sup>5</sup> Physiology Department Faculty of Veterinary Medicine, Cairo University, Giza, Egypt
- Department of Biochemistry and Molecular Biology, Faculty of Veterinary Medicine, Cairo University, Giza 12211, Egypt
- Department of Microbiology Mycology and Immunology, Faculty of Veterinary Medicine, Beni-Suef University, Beni-Suef 62511, Egypt
- Department of Pharmacology, Faculty of Veterinary Medicine, Beni-Suef University, Beni-Suef 62511, Egypt

