Advances in Computer Science and Information Technology (ACSIT)
p-ISSN: 2393-9907; e-ISSN: 2393-9915; Volume 10, Issue 1; January-March, 2023, pp. 40-40
© Krishi Sanskriti Publications
http://www.krishisanskriti.org/Publication.html

IIIM-NRG Alleviates UV-B induced Impaired Mitochondrial Dynamics Mediated NF-Kappa B Activation in Primary Human Dermal Fibroblasts and Balb/c mice

Archoo Sajeeda[#1, 2] and Sheikh Tasduq Abdullah[*1, 2]

[1]Academy of Scientific and Innovative Research, AcSIR, Ghaziabad, India
[2]Pharmacology Division, CSIR-Indian Institute of Integrative Medicine, Jammu, India
E-mail: [1]archosajida31.@gmail.com, [2]stabdullah@iiim.res.in

Abstract

Background *:* Ultraviolet B radiation has been established as the primary extrinsic etiological agent for skin photodamage.

Aim: The current study aimed to assess the therapeutic efficacy of natural compound IIIM-NRG against Ultraviolet B (UVB) -induced cellular damage in human skin and its underlying mechanism..

Methods: The study was performed using primary human dermal fibroblasts (HDF cells) and Balb/C mice as model systems. We subjected HDFs and Balb/C mice to UV-B -irradiation and studied the photodamage markers, including oxidative stress (catalase, SOD1, NRF2), Mitochondrial Dysfunction(Drp1,Fis1,MFN1and MFN2), inflammation (pNF-κBp65, IL-6, IκKβ),and apoptosis (Caspase 3 and caspase 9)

Results: We found that HDFs irradiated with UV-B and treated with III-NRG considerably conserved their cellular and molecular function compared to those exposed to UV-B alone. In HDFs, UV-B exposure induced Oxidative stress, Mitochondrial fission, inflammation, and apoptotic protein markers. IIIM-NRG significantly reduced UV-B –induced mitochondrial fission, Oxidative stress and inflammation.

Conclusion: Our findings imply that IIIM-NRG can reduce skin photodamage/photoageing and has the potential to be developed as a medicinal agent.

Keywords: Photodamage, Mitochondrial Dysfunction, Oxidative stress, Inflammation,