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**Protective effects of methyl jasmonate on chronic stress-activated behavioral alterations and markers of oxidative stress**Oritoke Aluko<sup>1,2</sup> and Solomon Umukoro<sup>2</sup><sup>1</sup>Federal University of Technology, Akure, Nigeria<sup>2</sup>University of Ibadan, Nigeria

Methyl jasmonate is a naturally-occurring anti-stress plant hormone and has been shown to ameliorate the effects of acute and chronic stress in mice. The present study aimed to study the behavioral and biochemical mechanisms underlying the adaptogenic-like properties of methyl jasmonate. Male Wistar albino rats were subjected to stressors of the unpredictable chronic mild stress (UCMS) paradigm for 28 days and treated with methyl jasmonate at 10, 25 and 50 mg/kg. Body and organ weights, behavioral and hematological parameters, as well as levels of biomarkers of oxidative stress were determined. UCMS resulted in a progressive weight loss, hypertrophy of liver and adrenal gland, and atrophy of spleen and testes. An aberrant behavioral pattern as evident by swim endurance and post summing motor function tests was also observed in UCMS-subjected rats. Likewise, UCMS induced a deviant in hematological parameters. UCMS also significantly increased the levels of serum glucose, corticosterone, monoamine oxidase, lactate dehydrogenase, cholesterol, triglyceride, creatine kinase and blood urea nitrogen. There was also an alteration of oxidative stress markers viz malondialdehyde, superoxide dismutase, catalase, reduced glutathione, and nitric oxide arginase, ATPase, adenosine deaminase induced by UCMS. Methyl jasmonate (10, 25 and 50 mg/kg) significantly ameliorated the UCMS-induced alterations in the body and organ weights. There was a significant amelioration of the UCMS-induced behavioral alterations by methyl jasmonate. Methyl jasmonate reversed the UCMS-induced suppression of erythrocytes, leukocytes, and hemoglobin content, packed cell volume and lymphocyte count. Methyl jasmonate significantly reversed the alteration of oxidative stress markers induced by UCMS. Also, pretreatment with methyl jasmonate significantly attenuated UCMS-associated biochemical alterations, pathological outcomes and oxidative stress. The present findings showed the adaptogenic potential of methyl jasmonate in relation to the antioxidant systems implicating their therapeutic importance in stress-related disorders. Further investigations on the neurochemical and morphological mechanisms are being studied.

**Biography**

Oritoke Aluko is a Doctoral student in Department of Pharmacology and Therapeutics, University of Ibadan, Nigeria. Her research is basically in the area of Behavioural Neuroscience and Psychopharmacology, which has brought her in contact with International Brain Research Organization (IBRO). She is an Assistant Lecturer in Department of Physiological Sciences, School of Health and Health Technology, Federal University of Technology, Akure, Nigeria. She is involved in teaching some topics in Physiology and Pharmacology to undergraduate students. She has some publications in reputable journals with large proportions of them in behavioral neuroscience.

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