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Authors: Parvaze Ahmad Wani, Javid Ahmad Wani, Shazia Wahid

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Recent advances in the mechanism of detoxification of genotoxic and cytotoxic Cr (VI) by microbes

[a]Parvaze Ahmad Wani, [b]Javid Ahmad Wani, and [c]Shazia Wahid

[a]Department of Biological Sciences, College of Natural and Applied Sciences
Crescent University, Abeokuta, Ogun State, Nigeria

[b]Govt. Dental College, Srinagar, Kashmir, India

[c]Seth Vishambhar Nath College of Pharmacy, Lucknow, UP, india

Correspondance To: Parvaze Ahmad Wani
Email: wani1889@rediffmail.com

Abstract

Chromium has different oxidation states which ranges between -2 to +6. Among all these oxidation states, Cr (VI) and Cr (III) are stable but vary in biological, geochemical and toxicological properties. Cr (VI) is more toxic than Cr (III), causes allergies, irritation and respiratory disorders. When Cr (VI) is taken up by the cell, its interaction with DNA-protein complex results in the formation of DNA-DNA cross links, and thus ultimately may cause mutagenic and carcinogenic effects. Chromium results in the formation of ROS, its interaction with DNA-protein complex and cellular components causes DNA alterations and arrests their physiological functions of the cell. ROS also may causes lipid peroxidation, DNA and protein damage and cause cancer in the cells. Chromium (VI) result in oxidative stress, genotoxicity,