

Myricetin May Provide Protection against Oxidative Stress in Type 2 Diabetic Erythrocytes

Kanti Bhooshan Pandey, Neetu Mishra, and Syed Ibrahim Rizvi*

Department of Biochemistry, University of Allahabad, Allahabad 211002, India.

E-mail: sirizvi@gmail.com

* Author for correspondence and reprint requests

Z. Naturforsch. **64c**, 626–630 (2009); received May 8/June 16, 2009

Oxidative stress is believed to be a major contributing factor in the development of late complications of diabetes. Many *in vitro* and *in vivo* studies have demonstrated that several parameters of red blood cell function and integrity are negatively affected by increased oxidative stress. Plant polyphenols are reported to exert many biological effects due to their antioxidant property. The present study was undertaken to evaluate the antioxidant effect of myricetin on markers of oxidative stress in erythrocytes from type 2 diabetic patients. The study was carried out on blood samples obtained from 23 type 2 diabetic patients and 23 age-matched control subjects. Erythrocytes were subjected to *in vitro* oxidative stress by incubating with 10^{-5} M *tert*-butyl hydroperoxide (t-BHP). Erythrocyte membrane lipid peroxidation and protein oxidation were measured in terms of malondialdehyde (MDA) and protein carbonyl group levels. The results showed an elevated MDA and protein carbonyl content in diabetic erythrocytes which were further increased after incubation with t-BHP. Myricetin at micromolar concentration significantly ($p < 0.01$) protected an t-BHP-induced increase in levels of oxidative stress parameters of diabetic erythrocytes.

Key words: Diabetes mellitus, Erythrocyte, Myricetin, Oxidative Stress