

Meeting abstract

Open Access

Spin trapping experiments with ethyl-substituted EMPO derivatives (EEMPO)

Klaus Stolze*¹, Nataliya Rohr-Udilova², Thomas Rosenau³,
Andreas Hofinger³ and Hans Nohl¹

Address: ¹Molecular Pharmacology and Toxicology Unit, Department of Natural Science, University of Veterinary Medicine, Vienna, Austria, ²Division of Gastroenterology and Hepatology, Clinic of Internal Medicine III, Medical University of Vienna, Austria and ³Department of Chemistry, University of Natural Resources and Applied Life Sciences (BOKU), Vienna, Austria

Email: Klaus Stolze* - klaus.stolze@vu-wien.ac.at

* Corresponding author

from 13th Scientific Symposium of the Austrian Pharmacological Society (APHAR). Joint Meeting with the Austrian Society of Toxicology (ASTOX) and the Hungarian Society for Experimental and Clinical Pharmacology (MFT) Vienna, Austria. 22–24 November 2007

Published: 14 November 2007

BMC Pharmacology 2007, 7(Suppl 2):A52 doi:10.1186/1471-2210-7-S2-A52

This abstract is available from: <http://www.biomedcentral.com/1471-2210/7/S2/A52>

© 2007 Stolze et al; licensee BioMed Central Ltd.

Free radicals in biological systems play a major role in the onset of many diseases, e.g. oxygen-centered radicals such as hydroxyl or superoxide radicals. In order to identify and localize these radicals a series of four novel spin traps have been developed and their structure fully characterized by [¹H]- and [¹³C]-NMR spectroscopy as well as mass spectrometry. The novel compounds can be described as ethyl-substituted EMPO derivatives, namely 5-ethoxycarbonyl-3-ethyl-5-methyl-pyrroline *N*-oxide (3,5-EEMPO), 5-ethoxycarbonyl-4-ethyl-5-methyl-pyrroline *N*-oxide (4,5-EEMPO), 5-ethoxycarbonyl-5-ethyl-3-methyl-pyrroline *N*-oxide (5,3-EEMPO) and 5-ethoxycarbonyl-5-ethyl-4-methyl-pyrroline *N*-oxide (5,4-EEMPO). Their spin trapping behaviour towards a series of different oxygen- and carbon-centered radicals is described. All compounds were obtained in two different stereochemical forms (*cis* and *trans*), but only 3,5-EEMPO and 5,3-EEMPO could be separated into the different diastereomers using conventional chromatographic procedures. The *cis*- and *trans*-forms exhibited considerably different spectral parameters and stabilities of the respective superoxide adducts (ranging from about 12 to 35 min). In addition, spin adducts obtained from different carbon-centered radicals derived from methanol, ethanol, formic acid and linoleic acid hydroperoxide have also been characterized.