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Plasma-Generated Reactive Species in physiological Solutions<sup>1</sup> MALTE U. HAMMER, HELENA TRESP, ANSGAR SCHMIDT-BLEKER, JORN WINTER, ZIK plasmatis at the INP Greifswald e.V., KLAUS-DIETER WELT-MANN, INP Greifswald e.V., STEPHAN REUTER, ZIK plasmatis at the INP Greifswald e.V. — Plasma-generated reactive species, like ROS and RNS, in liquids are essential for plasma medicine caused by their role in mammalian systems. Especially free radicals and nitric monoxide are important. Here the focus is set on plasma-generated reactive species in physiological solutions such as cell culture medium, sodium chloride solution, and phosphate buffered saline. The detection of free radicals was performed via electron paramagnetic resonance (EPR) spectroscopy. Additionally electro chemical detection for pH value and concentration of  $H_2O_2$  was realized in parallel to each experiment. Because nitric oxide is rapidly oxidized to nitrate and/or nitrite by oxygen, the measurement of nitrate and nitrite concentration as the end products of NO hold as an index for the integrated nitric oxide production. Nitrite and nitrate play a key role in plasma-treated liquids. For this work a colorimetric assay was used for nitrate and nitrite concentrations measurements. The control of species, which can diffuse into the effluent of an atmospheric pressure plasma jet, is necessary. A gas curtain was build and its effect on reactive species production in liquids was investigated. The gas curtain was used with varying ratios of nitrogen and oxygen as shielding gas.

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