Application of Fine Bubbles for *Free Radical Reduction*: An Experimental Study

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Abstract

This study investigates the use of Electron Spin Resonance (ESR) spectroscopy, employing a novel spin-trap reagent G-CYPMPO, to quantify the generation and scavenging capacities of hydroxyl (•OH) and superoxide ($•O_2^-$) radicals in various materials after beeing treated with nanobubbles generated using various gases (Fig. 1). The study highlights the dual role of free radicals in biology. It proposes novel antioxidant and oxidant candidates with promising implications in the medical, environmental, and materials science domains.

References

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Figures

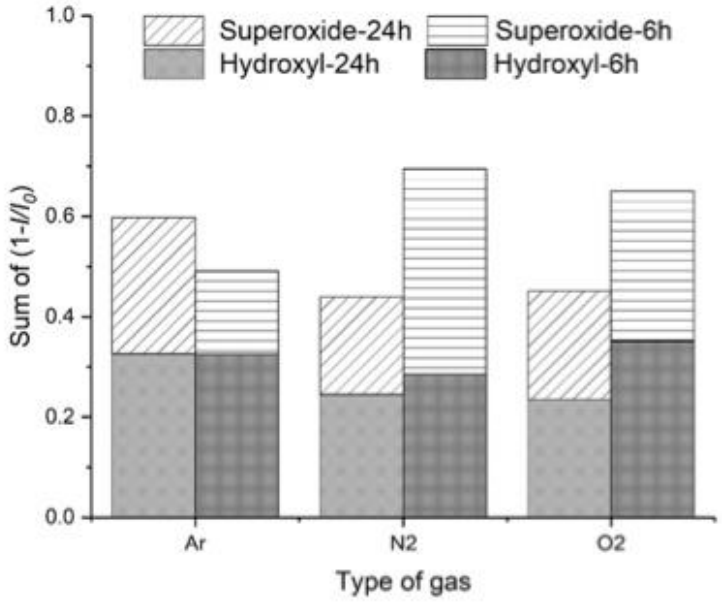

Figure 1: Plot of $1-I/I_0$ of hydroxyl radical and superoxide radical, where I_0 and I denote ESR intensity in the absence and presence of nanobubbles, respectively.