

## The Anti-Inflammatory Effects of Nanodiamond Particles and Lipoic Acid on Rats' Cardiovascular System

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**Abstract :** Nanodiamond (ND) is a carbon nanomaterial that has high biocompatibility, and it has a very positive effect on a number of biochemical processes. NDs have great potential in treating multiple inflammation-associated diseases. The purpose of this study was to investigate the anti-inflammatory effect of nanodiamonds and lipoic acid (LA) (as antioxidants) on rats' cardiovascular systems after lipopolysaccharide (LPS) administration. Animal experiments enabled the determination of how nanodiamonds act when applied independently or in combination with lipoic acid. The effect of NDs and LA on C-reactive protein (CRP) levels and heart edema was evaluated. NDs and LA administered after LPS administration attenuated heart edema and significantly decreased the CRP level. The results suggest that NDs and LA play an important role in LPS-induced inflammation in the heart. NDs find new applications in modern biomedical science and biotechnologies.

**Keywords :** nanodiamonds, lipoic acid, inflammation, cardiovascular system

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