

Natural Medicinal Substances in Kidney Diseases

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Abstract

Kidney diseases represent a significant global health concern, with conditions such as chronic kidney disease, nephrolithiasis, diabetic nephropathy, and acute kidney injury affecting renal function and overall health. This study reviews the potential role of natural medicinal substances in the prevention and management of kidney-related disorders. Various plant-derived compounds, herbal preparations, dietary constituents, and naturally occurring bioactive substances have been investigated for their antioxidant, anti-inflammatory, antimicrobial, diuretic, and nephroprotective properties. The study examines the reported therapeutic potential of selected natural substances and their possible mechanisms of action, including reduction of oxidative stress, modulation of inflammatory pathways, protection of renal tissues, and support of normal urinary function. Particular attention is given to the traditional use of medicinal plants and the growing scientific interest in validating their pharmacological properties through experimental and clinical research. At the same time, the study recognizes important limitations, including variations in plant composition, dosage, bioavailability, quality control, potential herb–drug interactions, and limited high-quality clinical evidence for many natural products. Therefore, natural medicinal substances should not automatically be considered substitutes for evidence-based medical treatment, particularly in patients with significant kidney impairment. The study concludes that naturally derived compounds may offer promising opportunities for complementary approaches to renal health, but further standardized laboratory, pharmacological, and clinical investigations are necessary to establish their safety, efficacy, appropriate dosage, and therapeutic applications.

Keywords: Natural Medicinal Substances, Kidney Diseases, Chronic Kidney Disease, Nephroprotection, Medicinal Plants, Herbal Medicine, Antioxidants, Anti-inflammatory Activity, Renal Health, Phytochemicals, Traditional Medicine, Natural Products.