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**Antilithiatic influence of spirulina on ethylene glycol-induced nephrolithiasis in male rats**

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**Abstract**

Problem statement: Nephrolithiasis or renal stone disease remains a significant health problem in the adult population. Nephrolithiasis is a recurrent disorder prominent in males. It is significant medical and surgical problem because of incidence, recurrence and severe consequences. The present day medical management of nephrolithiasis is either costly or not without side effects. Invasive procedures for the treatment of nephrolithiasis may cause serious complications and they also impose a great load of costs to the healthcare system. Hence the search for antilithiatic drugs from natural sources has assumed greater importance. Approach: The aim of the present study was to evaluate the antilithiatic activity of spirulina supplementation on ethylene glycol induced nephrolithiasis in male rats. Healthy male Wistar rats were used in the present study and were divided randomly into 4 groups. Rats of 1st group were served as normal control. Rats of 2nd group were received 0.75% ethylene glycol in drinking water for three weeks and drinking tap water for the next three weeks. Rats of 3rd group were received 0.75% ethylene glycol in drinking water for three weeks and fed with spirulina solution (20 mg kg<sup>-1</sup> body weight) for the next three weeks. Animals of 4th group were treated as 1st group for the first three weeks and fed with spirulina solution at the same dose given to 3rd group for the last three weeks. After six weeks, serum levels of sodium, chloride, potassium, calcium, phosphorus, Blood Urea Nitrogen (BUN), uric acid, creatinine, Alanine aminotransferase (ALT), Aspartate aminotransferase (AST) were measured. Results: Statistically increases in the levels of sodium, chloride, BUN and ALT and a decrease in the level of calcium were noted in rats treated with ethylene glycol. Supplementation of spirulina for the last three weeks mostly recovered the rats from nephrolithiasis and completely from hepatotoxicity induced by ethylene glycol. Conclusion: This study suggested that spirulina is a safety and promising agent as a functional food for the management of nephrolithiasis induced by ethylene glycol and may be also by other chemical factors. © 2010 Science Publications.

**Author Keywords**

Ethylene glycol; Nephrolithiasis; Rats; Serum chemistry; Spirulina

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