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## EFFECTS OF NITRATE TOXICITY ON VITAMIN A CONCENTRATION AND THE THYROID GLAND STATUS IN ALBINO RATS

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Nitrates and nitrites are naturally found in fruits, vegetables and grains. In addition, they are used as food additives, preservatives and colour fixatives. Nitrite toxicity is induced by formation of methaemoglobin, and carcinogenic substances e.g. nitrosamines. In the current study we explored the impacts of chronic exposure of albino rats to potassium nitrate. Fourteen rats were randomly divided into 2 groups (n=7), control group and potassium nitrate treated group in dose of 20 mg/kg for 3 months. Subsequently, urine and blood samples were collected at 1, 2 and 3 months. At the end of the experiment (3 months), rats were sacrificed and thyroid glands were harvested. Biochemical analysis exhibited significant decrease in the urinary iodine and blood-based thyroid hormones (T3 and T4), vitamin A compared with matched-time control group. However, calcium, nitric oxide and MDA showed significant increase in potassium nitrite treated rats. Marked thyroid injury was observed in the form of size and shape of the thyroid follicles, some follicles were enlarged and filled with colloid fluids, but other were completely empty upon sodium nitrite exposure. Moreover, in some cases hyperplasia with leukocytic infiltrations in the Para follicular cells replacing the atrophied follicles. In conclusion, our results provide new evidences that toxic effect of potassium nitrite is possibly mediated by inhibition of iodine absorption, vitamin A level, thyroid destruction and depression of the antioxidant system.

### BIOGRAPHY

Atef Mohammed Khalil has completed his PhD at the age of 29 years from Miyazaki University, Japan in joint supervision with South valley university, Egypt. He is the assistant professor of Clinical pathology, South Valley University. He has over 13 publications that have been cited over 50 times and his publication H-index is 4 and has been serving as an editorial board member of reputed Journals.

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