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Effect of Thiamin Status on the Metabolism of Linamarin in Rats

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Abstract

The effect of graded levels of thiamin on the metabolism of linamarin was investigated in rats. It was observed that on a diet deficient in thiamin, a large amount of linamarin was recovered unchanged in the urine, together with significantly more thiocyanate (SCN⁻) relative to the control. The least amount of thiocyanate ($p < 0.05$ relative to control) was found in animals receiving the highest amount (twice daily requirement) of thiamin in the diet; but the amount of unmetabolized linamarin was similar to the control. It is suggested that thiamin deficiency may be implicated in the aetiology of tropical ataxic neuropathy (TAN) through the thiocyanate overload in people eating large amounts of cassava and cassava derivatives which contain linamarin.

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Key Words. Thiamin · Metabolism · Linamarin

Abstract. The effect of graded levels of thiamin on the metabolism of linamarin was investigated in rats. It was observed that on a diet deficient in thiamin, a large amount of linamarin was recovered unchanged in the urine, together with significantly more thiocyanate relative to the control. The least amount of thiocyanate ($p < 0.05$ relative to control) was found in animals receiving the highest amount (twice daily requirement) of thiamin in the diet; but the amount of unmetabolized linamarin was similar to the control. It is concluded that thiamin deficiency may be implicated in the aetiology of tropical neuropathy (TAN) through the thiocyanate overload in people eating large amounts of cassava sava derivatives which contain linamarin.

Introduction

Some of the vitamins of the B-complex group have been implicated in the metabolism of cyanide in the body. Although the major route of cyanide detoxification is

unavailable to tissues, a small amount of cyanide. However, in the absence of cyanide, flavin mononucleotide (riboflavin) could be utilized in the oxidation system, and the increased requirement for

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