

## TOXICITY STUDIES OF A NEW SELENIUM COMPOUND, SELOL, IN RATS

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**Summary:** *Selol is a new organoselenium compound synthesized in the Department of Drug Analysis, Warsaw. The general acute and cumulative toxicities of Selol were tested in rats. The compound did not display any toxic effects after parenteral administration up to 500 mg/kg<sup>-1</sup> s.c. and 100 mg/kg<sup>-1</sup> i.p. However, given orally it exhibited high toxicity. LD<sub>50</sub> value after a single oral administration amounted to 100 mg/kg<sup>-1</sup> and after administration in an increasing-dose schedule to 80 mg/kg<sup>-1</sup>. On the basis of these results the authors conclude that Selol may be converted to a more toxic product during digestion. Therefore, Selol as a source of selenium is safer given by the parenteral route.*

### Introduction

Previous reports (1, 2) have shown that selenium is an integral part of the enzyme system glutathione peroxidase which protects cells against oxidative damage. It has been suggested that selenium as a free radical scavenger may be useful in the prevention of cancer and in atopic dermatitis (3). Moreover, some reports (4, 5) have indicated that selenium deficiency might be important in the development of cardiomyopathies.

Selenium is present in foods mainly as the amino acids selenomethionine, selenocysteine and derivatives. It has been shown that the bioavailability of organic selenium compounds is very high and their toxicity relatively low (6, 7). Based on this, a new organic-compound of selenium, named Selol,

has been synthesized in our laboratory. In preliminary studies using <sup>1</sup>H- and <sup>13</sup>C-NMR, Selol showed a polymeric structure composed of selenoglycerides. Detailed results on its structure will be published at a later date pending patent registration.

The studies in this report were designed to investigate acute and cumulative toxicities of Selol after oral or parenteral application.

### Materials and methods

**Acute toxicity study (A-LD<sub>50</sub>).** Studies were performed on male Wistar rats. Animal body weight on the first experimental day averaged 279 ± 89 g. The rats were kept under conventional standardized conditions (room temperature 22.5–23.0°C; relative humidity 50–70%; 12 h day/night cycle) and had free access to tap water and standard diet. Selol was diluted with vegetable oil and administered in a volume of 10–30 ml/kg<sup>-1</sup> p.o., i.p. and s.c.

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