

## Mg(SeO<sub>3</sub>H)<sub>2</sub>.4H<sub>2</sub>O and Cu(SeO<sub>3</sub>H)<sub>2</sub>.2H<sub>2</sub>O: Potentially Useful Compounds for Selenium Supplementation

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**SUMMARY.** The title hydrogen selenites were obtained and characterized by X-ray powder diffractometry and infrared spectroscopy. Their thermal behaviour was investigated by means of TG and DTA measurements. Several dissolution tests were also performed. The results support the potential usefulness of these salts for selenium supplementation in human and veterinary medicine and to the simultaneous reinforcement of Mg(II) and Cu(II) levels.

**RESUMEN.** "Mg(SeO<sub>3</sub>H)<sub>2</sub>.4H<sub>2</sub>O y Cu(SeO<sub>3</sub>H)<sub>2</sub>.2H<sub>2</sub>O: Compuestos Potencialmente Útiles para la Suplementación de Selenio". Los selenitos ácidos del título fueron obtenidos y caracterizados por difracción de rayos X de polvos y espectroscopía de infrarrojo. Su comportamiento térmico fue investigado a través de medidas TG y ADT. Asimismo, se realizaron diversos ensayos de disolución. Los resultados apoyan la potencial utilidad de ambas sales para la suplementación de selenio en medicina humana y veterinaria, así como para reforzar simultáneamente los niveles de Mg(II) y Cu(II).

### INTRODUCTION

Supplementation of essential trace or micro-trace elements is an area of increasing interest in the field of human and veterinary pharmacology. In particular, selenium supplementation is a problem of wide and strong economic and clinical impact due to the fact that a series of well-known metabolic disorders and diseases found in both humans and animals are clearly related to selenium deficiencies<sup>1-4</sup>.

Several different approaches have been used in an attempt to estimate human selenium requirements, including extrapolation from animal experiments, determination of the amounts needed to maintain metabolic balance, analysis of dietary intakes and measurement of functional responses during depletion-repletion studies. An estimate amount of 50-80 µg/day seems to be a reasonable figure<sup>3,4</sup>, with the additional

comment that women usually requires lower doses, probably due to differences in body size between men and women<sup>3</sup>.

Regarding the selenium requirements for animals, depending on the species, the age of the animal and the criterion on deficiency selected, doses between 0.10 and 0.20 mg/Kg are probably reasonable estimates<sup>3,4</sup>.

Different selenium compounds have been proposed and are currently used for supplementation of the element. They include simple inorganic species such as SeO<sub>2</sub>, Na<sub>2</sub>SeO<sub>3</sub> or Na<sub>2</sub>SeO<sub>4</sub> or organic compounds such as selenomethionine and selenocystine, as well as certain yeasts incubated in selenium rich media<sup>1, 3-5</sup>. In the case of animals, administration of selenium-containing heavy pellets (composed, for example, by finely divided metallic iron and up to 5% of elemental selenium) and treatment of soils with

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**PALABRAS CLAVE:** Selenitos Ácidos, Espectros IR, Comportamiento Térmico, Ensayos de Disolución, Suplementación de Selenio.

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