

Meeting abstract

## $\beta$ -Sitosterol oxidation products failed to show mutagenic potential in the Ames test

Karin Koschutnig\*<sup>1</sup>, Suvi Kemmo<sup>2</sup>, Anna-Maija Lampi<sup>1</sup>, Vieno Piironen<sup>1</sup> and Karl-Heinz Wagner<sup>1</sup>

Address: <sup>1</sup>Department of Nutritional Sciences, University of Vienna, Austria and <sup>2</sup>Department of Applied Chemistry and Microbiology, University of Helsinki, Finland

Email: Karin Koschutnig\* - [karin.koschutnik@univie.ac.at](mailto:karin.koschutnik@univie.ac.at)

\* Corresponding author

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### Background

Over the past few years phytosterols have received great attention due to their serum cholesterol-lowering effect. As a consequence a growing number of functional foods are fortified with phytosterols and their esters. In structure phytosterols are similar to cholesterol. Both contain an unsaturated ring structure and are therefore prone to oxidation. While possible health implications of cholesterol oxidation products (COPs) have been well documented, data on phytosterol oxidation products (POPs) are still rare. First data with different cultured mammalian cells show for POPs similar toxicity like COPs.

### Objective

Therefore we investigated for the first time possible mutagenic and pro-oxidative effects of two common oxidation products of  $\beta$ -sitosterol, 7-keto-sitosterol and 7 $\beta$ -OH-sitosterol, in the Ames test. Different *Salmonella thyphimurium* strains, TA 98, 100, 102, were used. For metabolic activation the oxidation products were treated with a rat liver enzyme mixture (S9). To further investigate the anti-/pro-oxidative effects the oxidant tBOOH was used.

### Results

In general neither 7-keto-sitosterol nor 7 $\beta$ -OH-sitosterol could increase the revertant colony numbers beyond the doubled negative control, which was set as threshold for

mutagenic activity. No dose-dependent increase could be observed. Since these two criteria must be fulfilled in order to identify a compound as a possible mutagen our tests showed no increased risk by the two investigated POPs.