# No Mutagenic Potential of 7- keto- sitosterol and 7β- OH- sitosterol in the Ames test

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Phytosterols are in structure quite similar to cholesterol. They both contain an unsaturated ring structure and therefore they are susceptible to oxidation. While possible health implications of cholesterol oxidation products (COP) have been extensively documented, data on phytosterol oxidation products (POPs) are rather scarce. First data with different cultured mammalian cells show for POPs similar toxicity like cholesterol oxides.

Since the variety of products fortified with phytosterols has increased rapidly during the last decade, investigations to better understand the biological significance of POPs are necessary and lacking.

The objective of this study was therefore to investigate for the first time possible mutagenic and pro-oxidative effects of two common oxidation products of β-sitosterol, 7-keto-sitosterol and 7β-OH-sitosterol, in the Ames test. Different *Salmonella thyphimurium* strains, TA 98, 100, 102, were used. Testing included treatment of the fractions at very low concentrations up to precipitating test doses. In order to simulate in vivo conditions the oxidation products were treated with a rat liver enzyme mixture (S9) for metabolic activation. To further investigate the anti-/pro-oxidative effects the pro-oxidant tertiary-butyl hydroperoxide (*t*BOOH) was used.

In general neither 7-keto-sitosterol nor 7β-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.