Title: Beneficial effects of Korean red ginseng on lymphocyte DNA damage, antioxidant enzyme activity, and LDL oxidation in healthy participants: A randomized, double-blind, placebo-controlled trial

Version: 1 Date: 3 January 2012

Reviewer: Abdelouahed Khalil

Reviewer's report:

Beneficial effect of Korean red ginseng...
Kim et al,
Journal of Nutrition

This study investigated the effect of Korean red ginseng (KRG) on oxidative damage (DNA and antioxidative enzyme activity and lipid peroxidation) in healthy subjects. The presented results showed an increase of SOD activity after 8 weeks of KRG supplementation, plasma Gpx and catalase activities were also increased. The DNA damage, as measured by DNA tail and tail oxidized LDL were significantly reduced after KRG. The author concluded that KRG supplementation might attenuate lymphocyte DNA and LDL oxidation by upregulating antioxidants enzyme activity.

Major points:

The SOD and catalase activities were measured in the serum. However, both SOD and catalase activities in the serum are very low when compared to the activity of these enzymes in the plasma membrane. So it is not clear why the authors preferred to measure the SOD and catalase activities in the serum instead of plasma membrane of cells such as erythrocytes?

It is not clear if the increase of the SOD and CAT activities is due to an increase of SOD and CAT proteins concentration or to an increase of the specific activities of these two enzymes.

The author measured oxidative damage to DNA and to lipid (oxidized LDL). However a measurement of oxidative damage to protein fraction (measurement of carbonyl groups) would have been very relevant to determine whether the increase of the SOD activity is due to a reduction of oxidative damage to protein or to an increase of the SOD synthesis.

Table 3: Gpx and Cat activities are low in the low and high-dose groups at baseline when compared to placebo group?

Minors: line 297, add a reference for the comparison between Korean ginseng and American ginseng
**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests