Reviewer's report

Title: Protective effect of AVS073, a poly herbal formula, against UVA-induced melanogenesis through a redox mechanism involving glutathione-related antioxidant defense

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Reviewer: Obdulio Benavente-Garcia

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The effect of AVS073 formula against UVA-induced melanogenesis can't be due to the GA content in the formula. Authors found a 0.0342% of GA in AVS073, that mean that the maximum GA present in the tyrosynase inhibition and melanin content assay is of 0.02 µg/ml of GA at 60 µg/ml of AVS073. Data shows in Figure 4 reflect that at least 5 µg/ml are needed to have a similar effect to AVS073. For a 0.02 µg/ml of GA nearly to none effect should be show.

The same occurs with ROS formation and the rest of assays. This is a very complex formula with a lot of compounds most of them are unknown. One of known tyrosinase inhibitors present in the formula is Kojic acid. Kojic acid have IC50 of 3-5 µg/ml for tyroxynase. Other compounds such as flavonoids and simple phenols have also tyrosinase inhibition activity and probably some of them can be present in the AVS073.

In my opinion is not a good idea to use a complex and uncharacterized formula if we want know the compound responsible of activity and their mechanist of action.

Level of interest: An article of limited interest

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' below