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GINOS Extract for the Treatment of Obesity and Aid Alcohol Detoxification

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Abstract

Background: Ginseng is most frequently used herbal and traditional oriental medicines having wide range of therapeutic and pharmacological demand. The major acti ve components of ginseng are the saponins, which are also called ginsenosides appear to be responsible for most of the activities of ginseng including antioxidation, a nti-inflammation, anti-diabetes and anti-cancer. Though various kinds of ginseng were reported for different efficacies, here we report GINOS which is an representativ e ginseng namely white ginseng, red ginseng, Taegeuk ginseng, black ginseng, fermented red ginseng and culture roots of mountain ginseng (CRMG) and mixed them equally in the mixture..

Methods and Results: We investigate the effects of GINOS on lipid accumulation in 3T3-L1 adipocytes and Alcohol dehydrogenase enzyme (ADH) in HepG2 cells. The changes in the content of ginsenosides in GINOS mixture were analyzed by HPLC, after which the effects of the GINOS on 3T3-L1 adipocytes and HepG2 cells were observed. When the 3T3-L1 adipocytes were treated with GINOS that effectively reduced lipid accumulation. Furthermore, the GINOS extract increased the ADH activity in HepG2 cells. These results suggest that the GINOS can be effectively used for the obesity treatment and to improve alcohol detoxication in liver.

Conclusion: In a nut shell, our results suggest that GINOS should be developed as an antiobesity treatment and have the potential for the protection of liver from har mful actions of alcohol.

Results

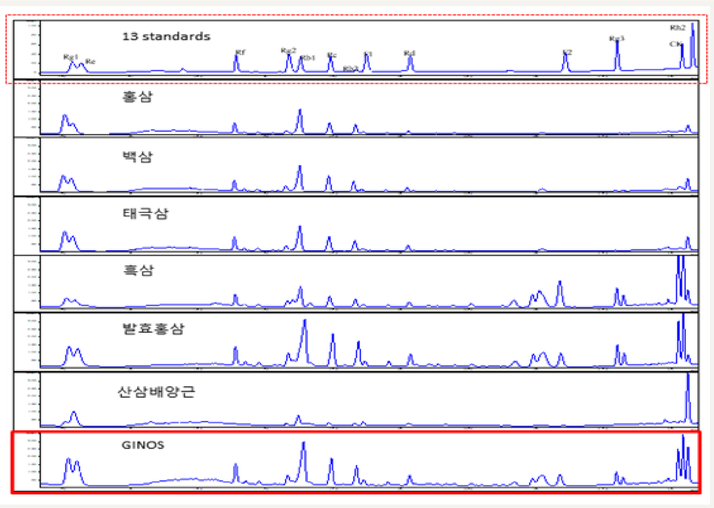

Fig 1. Comparison of ginsenosides HPLC pattern of various processed ginseng

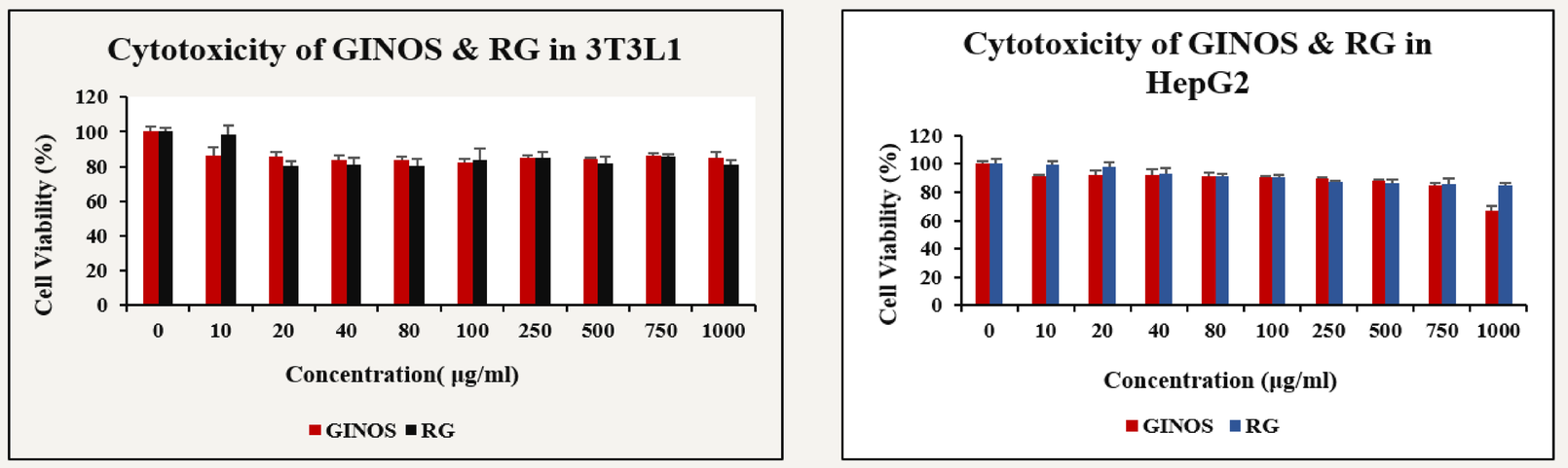

Fig 2. In vitro cytotoxicity assay of GINOS and Red ginseng in (a) 3T3L1 preadipocyte cell line (b) HepG2 cell line. Each value is expressed as the mean ± error of three experiments. P <0.001 compared to control.

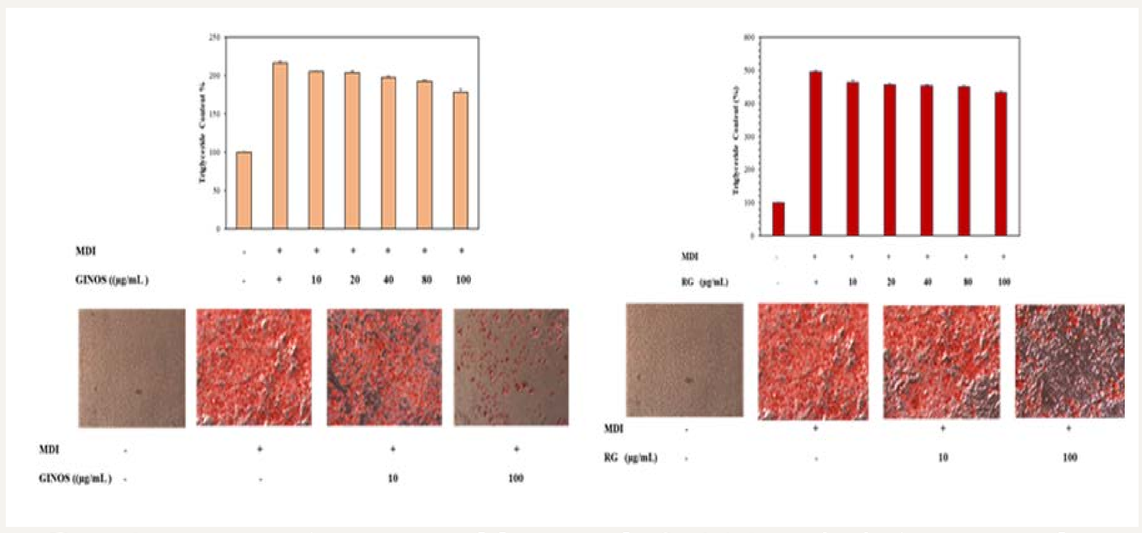

Fig 3. Anti-obesity effect of GINOS (inhibition of adipocyte and TG accumulation in 3T3 cells.

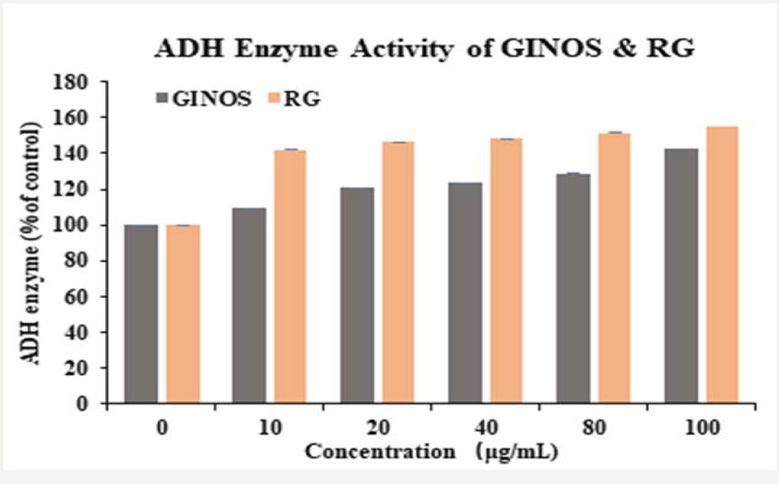

Fig 4. Alcohol detoxification promoting effect of GINOS (promoting ADH activity in HepG2 cells)

Conclusion

This study exposed for the first time the anti-adipogenic effect of GINOS on the suppression of adipocyte differentiation and alcohol detoxification. After the treatment of both 3T3L1 preadipocyte cells and HepG2 liver carcinoma cells with GINOS extract containing different concentrations (10-100 µg/mL), it was observed that TG accumulation decreased in a dose dependent manner while ADH activity increased in a dose dependent manner. Our results suggest that the GINOS can effectively be used for the obesity treatment and to improve alcohol detoxification.

Acknowledgement

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