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Mass-Production and Anti-aging Effect of Rare Ginsenoside-Rh4, Rg6, Rg4 and Rk3

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Ginseng leaves contain relatively large amount of ginsenosides as compared with ginseng roots. But these are almost discarded because of detection of residual agricultural pesticides. However, through extraction and isolation of ginseng leaves, we could secure lots of various standard-ginsenosides. Especially, ginsenoside-Re was obtained about 23g per 1kg of ginseng leaves.

In this study, we performed to efficiently make rare ginsenoside-Rh4, -Rg6, -Rg4 and -Rk3 by using ginsenoside-Re. After ginsenoside-Re was added edible vinegar of pH 2.6, it was steamed at 140 under 0.16 Mpa for 2 h. The alteration of the steamed ginsenoside-Re was determined by HPLC analysis. It showed that ginsenoside-Re was perfectly disappeared and new ginsenoside-Rh4 was gained as major material. Also, it was gained a small quantity of ginsenoside-Rg6, -Rg4, -Rk3 and –(R/S)-Rh1.

Four kinds of ginsenoisdes were isolated from the steamed ginsenoside-Re by chromatographic method and pure ginsenoside-Rh4, -Rg6, -Rg4 and -Rk3 were tested for anti-aging effects. As a results, it were identified that ginsenoside-Rh4 and -Rg6 significantly prevented wrinkle formation and the loss of collagen, fibers with increased type I collagen genes (COL1A1). Also, all of ginsenoside-Rh4, -Rg6, -Rg4 and -Rk3 showed anti-oxidant effect. In particular, ginsenoside-Rg4 exhibited the highest reactive oxygen species (ROS) scavenging activity on Raw264.7.

As shown these results, ginsenoside-Rh4, -Rg6, -Rg4 and -Rk3 can be new anti-aging agents in the cosmetic industry.

Biography

Gyu-Yong Song completed his PhD from Chungnam National University and Postdoctoral studies from the University of Georgia. He is a Professor at College of Pharmacy, Chungnam National University and the Leader of Chungnam National University's LINC (Leaders in Industry-university Cooperation) project group. He has published more than 30 papers in reputed journals and has registered more than 20 patents. He has performed a development of DMNQ derivatives, decursin derivatives, carbazole derivatives and flavone derivatives, related to Wnt signaling pathway, platelet aggregation, anti-aging and so on. He has carried out the processing of ginseng, such as black ginseng.

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