

(구두-2)

Production of Polyclonal Antibody against Ginsenoside Rg<sub>3</sub>,  
Anti-angiogenic Compound from Ginseng, for the  
Development of ELISA Methods

Chung Ki Sung<sup>o</sup> and Hai Guang Li

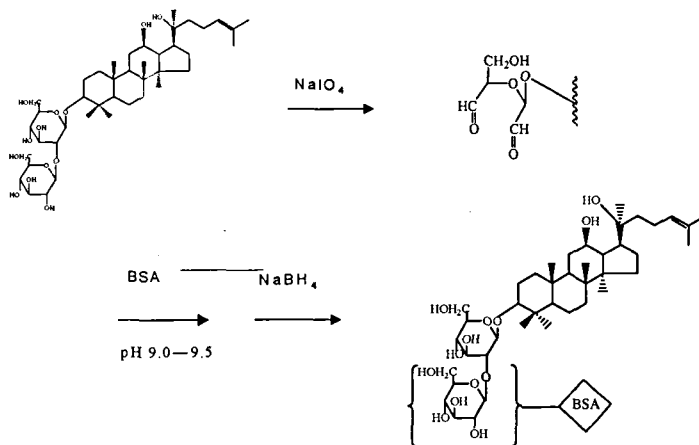
College of Pharmacy, Chonnam National University,  
Kwangju 500-757, Korea

Ginseng study is faced with new era for the crisis of market share overseas and new physiological activities and their compounds. For the overcome of those confronted problems, biotechnological studies on ginseng and the elucidation of action mechanism of new physiological ginseng compounds like ginsenoside Rg<sub>3</sub>, compound K and so on should be helpful. From the latter purpose we have been tried to develop ELISA methods for the determination of ginseng saponins and sapogenins(Jung *et al.*, 2002).

ELISA method is one of the most powerful techniques for the determination of active components of natural products in the field of phytochemistry and plant biotechnology because of its simplicity, high sensitivity, and moderate apparatus costs. Recently the needs for the determination method are growing for the use in the field of ginseng biotechnology and the development of new drugs using ginseng components.

Ginsenoside Rg<sub>3</sub>(GRg<sub>3</sub>) was proven to have anti-angiogenic anti-cancer action (Kitagawa *et al.*, 1993) and is under developing of new drug. But for the development of new drug, highly sensitive quantitative determination method is prerequisite to develop.

GR<sub>3</sub> was purified from the metabolites of ginsenoside Rb<sub>1</sub> with the treatment of entero-bacteria. A conjugate of GR<sub>3</sub> linked through its terminal glucose moiety to bovine serum albumin by periodate oxidation method was used as an immunogen.



Scheme 1. Synthesis of GR<sub>3</sub>-BSA conjugate

Rabbits were immunized with the mixture of this immunogen (1 mg) and same volume of Freund's complete adjuvant per one rabbit and several booster injection of half quantity of conjugate and same volume of Freund's incomplete adjuvant over three months. Antiserum was obtained from total blood collected after the titer was reached maximum. With this antiserum competition assay with GR<sub>3</sub> was tested.

High titer rabbit polyclonal antibodies using GR<sub>3</sub>-BSA conjugate as an immunogen were raised. This antibodies showed competitive reaction with GR<sub>3</sub> and PPD. This antibodies could be used to establish of ELISA method of GR<sub>3</sub>.

ELISA method for the determination of GR<sub>3</sub> using this antibodies are under construction.

## References

1. Jung, Da-Woon, Lee, Jeong Mi, Sung, Chung Ki: Enzyme-linked immunosorbent assay for the determination of 20(S)-protopanaxatriol, *Analytica Chimica Acta*, **2002**, 462(2), 157-163.
2. Kitagawa, Isao, Aketo, Hitoshi, Aragai, Kyoko: Ginsenoside Rg<sub>3</sub> as antitumor agent, Jpn. Kokai Tokkyo, **1993**, JP 05009123, 3 pp.

## Acknowledgements

This work was supported by a grant from the Korea Ginseng Corporation.

전남대학교 약학대학

성충기

전화: 062-530-2925

핸드폰: 016-484-2925

E-mail: chksung@chonnam.ac.kr

광주시 북구 용봉동 300 (☎ 500-757)

발표 형태: 일반 구두발표