

## **Executive Summary - International Ginseng Conference 2003**

Kwang-Tae Choi  
The Korean Society of Ginseng

Established in 1994, in Vancouver, Canada, the International Ginseng Conference (IGC) had its third meeting, from November 27 to 30, 2003 in Melbourne, Australia.

This report is to summarize and comment on some of the most distinguishable reports presented at the third meeting of the International Ginseng Conference held in Melbourne, Australia. Among them, the report of the “Ginseng Cultivation in Tasmania, Australia” has been included as an interesting case in need for its further review.

- Ginseng production in Asia (Prof./Dr. Paul But, Chinese University of Hong Kong): All but one species of *Panax* grow naturally in eastern Asia, distributing from Russia to Vietnam, and the remaining one (*Panax quinquefolius*, American ginseng) in eastern North America. A new ginseng, with horizontal rhizomes, Vietnam ginseng (*P. vietnamensis*), was discovered in 1973 in the central highlands of Vietnam. It is now grown in Vietnam, and, with recent government subvention, its production is expected to reach 10 tons by 2010.
- Canadian ginseng production: 300 years young (Dr. John Proctor, University of Guelph, Canada): The North American ginseng industry can be traced back 300 years to its origin in eastern Canada. Expansion of North American ginseng production in the last 20 years has changed its image from an obscure medicinal plant with

substantial financial returns, to one with reduced returns to producers. These many issues cannot be accomplished without research expertise, concerted and ongoing research funding support, and strong agribusiness leadership.

- American ginseng in cancer therapeutics (Dr. Laura Murphy, Dept. of Physiology, Southern Illinois University of Medicine): Studies in her laboratory have examined the effects of a water extract of American ginseng root (*Panax quinquefolius*) on immortalized human breast cancer cells. Using two different human breast cancer cell lines, MCF-7 (estrogen-dependent) and MDA-MB-231 (estrogen-independent), she has found that the treatment of cultured cancer cells with American ginseng extract produced a significant and dose-dependent decrease in cancer cell growth. In subsequent studies, when mice were inoculated with either MCF or MDA cells, those mice that received 1% ginseng extract in their drinking water exhibited a significant decrease in tumor size versus the untreated controls. Subsequent studies revealed that the ginsenoside root components, Rg and Rh2, elicited significant growth-inhibitory effects on human breast cancer cells, suggesting that these may be the active anti-cancer constituents in American ginseng root. Her brother is growing ginseng now.
- Growth of *Cylindrocarpon destructans* and interaction with ginseng roots causing root rot (Dr. Zamir Punja, Simon Fraser University): The fungus *Cylindrocarpon destructans* can cause extensive root rot on ginseng and in some cases has been implicated with causing rusty root. Foliar applications of Fe to plants three times during 2002 season significantly increased the Fe concentration in the root and these roots had larger lesions following *Cylindrocarpon* inoculation *in vitro*, but no rust lesions were observed. Field-grown rusty ginseng root tissues contained 174 µg/g Fe compared to 80.7 µg/g in health roots.

- Application of molecular biology to managing diseases caused by *Cylindrocarpon destructans* (Dr. Richard Reeleder, Agriculture & Agri-Food Canada): The ultimate goal of this work is the development of a method for rapid detection and quantification of *Cylindrocarpon destructans* DNA in soil. Amplified fragment length polymorphism (AFLP) data and pathogenicity assays were used to characterize isolates of *C. destructans* from ginseng. Certain ginseng isolates from Ontario and Korea were found to be very similar and to comprise a host-adapted biotype that is highly aggressive on ginseng. Primer sets were designed.
- The effects of temperature and humidity on ginsenosides in American ginseng raw material (Dr. Doug Stuart, University of Newcastle, Australia): The concentration of total ginsenosides in root powder decreased in 8 of the 9 storage conditions with an increase observed at 20 °C at 100% relative humidity.
- New EU legislation on herbal medicinal products: Impact on ginseng products: An European Union regulation for the registration of herbal medicinal products became necessary for harmonizing the different legislations of the European countries. For this purpose the HMPWP (Herbal Medicinal Products Working Party) was created at the EMEA. Milestones of the work are the “Note for guidance on quality of herbal medicinal products” (EMEA/CPMP/ 2819/00), the “Note for guidance on specifications: test procedures and acceptance criteria for herbal drugs, herbal drug preparations and herbal medicinal products” (EMEA/CPMP/ 2820/00), and so on. For *Panax ginseng* preparation, he insists on no need to perform studies.
- Can cold tolerance improved by ginsenoside extract be further enhanced by methylxanthines? (Dr. Tze-fun Lee, University of Alberta, Canada): By using different ginsenoside components, he has demonstrated that ginsenoside, particularly Rb1, can enhance the thermogenic capacity of both young and old rat under cold exposure (-10 °C for two hours.)