

## 〈 Summary 〉

Purpose& Contents	<ul style="list-style-type: none"> <li>○ To take countmeasure to overseas(China) smuggling domestic ginseng seeds</li> <li>- Comparative analysis of genetic and metabolic characteristics of ginseng and establishment of origin discrimination database</li> <li>- Survey on the seed distribution and status and prospect of ginseng cultivation in China.</li> </ul>
Results	<p><b>&lt;Genetic comparison of domestic and Chinese ginseng using a DNA markers&gt;</b></p> <ul style="list-style-type: none"> <li>○ Genetic similarity between Chinese ginseng and domestic ginseng by collecting site</li> <li>- Similarity by province : Jilin 59%, Liaoning 73%, Heilongjiang 37%</li> <li>- Similarity by city               <ul style="list-style-type: none"> <li>* over 70% : Wangqing, Ando, Jian, goji, Xinbin,</li> <li>* 30~50% : Hunchun, Jian daero, Shagzhi, Tangyuan</li> <li>* below 30% : Tieli</li> </ul> </li> <li>○ As a result of the experiment, we could predict the possibility that domestic ginseng seeds were illegally exported to China. For more precise identification, additional DNA marker development is urgent. In addition, DNA markers should be developed to ensure the discrimination of new varieties.</li> </ul> <p><b>&lt;Survey on the seed distribution and ginseng cultivation status in China&gt;</b></p> <ul style="list-style-type: none"> <li>○ The annual requirement of ginseng seeds in China is 211 t, the production amount is estimated at 275 t.</li> <li>- Ginseng seeds are collected once in 3~5 years of age, 30% in self-collection by farmers, 42.2% in purchase and 17.4% in unidentified farms.</li> <li>○ The cause of the illegal export of Korean ginseng seeds is price difference (more than 30,000 won/kg), increase in seed demand in Jilin province, curiosity about the efficacy and functionality of Korean ginseng</li> <li>- The Chinese government also began regulating the smuggling of Korean ginseng seeds.</li> <li>○ The northeast three provinces in China are the main area of ginseng cultivation, and Jilin province produces more than 85% of total amount in China.</li> <li>○ Total production of cultivated ginseng in China is about 37,810 t in 2013, with 32,100 t in Jilin (83%), 4,454 t in Heilongjiang(12%) and Liaoning Province in 1,256 t(4%).</li> <li>○ The sunshade facility is prepared in arches with wood and cement poles, and circular trees, bamboo tree, thick wire, etc. with 0.08mm vinyl film and shading net.</li> <li>○ Ginseng products of China are classified as white ginseng, red ginseng, western ginseng, direct ginseng and semi-ginseng.</li> <li>○ Ginseng samples for analysis are collected 6kg from farmer's fields of 18 regions in Jilin Province in 2014, 5kg from 2 farms in Jilin and 14 farms in Liaoning Province, in 2015 and 5kg from 4 regions in Heilongjiang Province in 2016, totaling 16kg are collected during 3 years.</li> <li>○ Soil samples are collected from the ginseng cultivating farm fields by 26 in 2014, 22 in 2015 and 14 samples in 2016.</li> <li>- Soil analysis showed that soil fertility was relatively good, but difficulty in long-term cultivation was observed due to drought in spring and autumn, high temperature and heavy rain in summer and low temperature in winter.</li> </ul>