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Editorial

Integrating tradition and innovation: Health industry opportunities for ginseng with foods and medicines

Panax ginseng C. A. Meyer (Renshen in Chinese) known as the "king of herbs", is one of the Chinese medicine resources with great national characteristics in China, and is also the advantageous characteristic medicinal plant resources in Jilin Province. China's ginseng planting area and total output ranked first in the world. For many years, Jilin Province has been treating ginseng industry as the leading industry, to make ginseng into a hundred-billion-yuan industry, which has now become an important pillar of the medicine and health industry in Jilin Province. As a traditional Chinese medicine (TCM) with a long history, ginseng has great depth and breadth in terms of its origin, efficacy, pharmacological effects, as well as historical evolution and research significance. With the development of modern science and technology, the active ingredients of ginseng and its mechanism of action have been explored more deeply, which is of great significance to the development of global medicine and health field.

From the uniqueness of its place of origin to its wide range of pharmacological effects, to its position in history and the significance and current status of modern research, ginseng is undoubtedly a natural treasure trove worthy of in-depth study and utilization (Ling, Li, Zhu, Song, & Zhang, 2024). Modern pharmacological studies have proved that ginseng plays an increasing role in the prevention and treatment of diseases, especially in the prevention and treatment of cardiovascular diseases (Irfan, Kwak, Han, Hyun, & Rhee, 2020), diabetes (Naseri et al., 2022), cancers (Yao & Guan, 2022) and other chronic diseases showing potential medical value (Xu et al., 2023). Ginsenosides are considered to be the most representative secondary metabolite in ginseng. Ginsenoside can enhance the immune function of the body and improve the body's resistance; it also has anti-fatigue effect, it can regulate nerve excitation and anti-fatigue, helping to relieve physical fatigue and mental stress; secondly, it also has anti-tumor effect, ginsenoside can inhibit the growth and division of tumor cells, promote apoptosis of cancer cells, and it has a certain therapeutic effect on a variety of cancers; in addition to this, it can also regulate blood sugar and can In addition, it can regulate blood sugar, can stimulate pancreatic islet cells to secrete insulin, which can help reduce blood sugar level; ginsenoside can protect cardiovascular and cerebrovascular, inhibit the activity of angiotensin-converting enzyme, which can help dilate blood vessels, and improve blood circulation; it can also slow down the aging of the body, as a natural antioxidant ingredient, ginsenoside can clean up free radicals, and slow down the aging of the cells. It should be noted that these activities of ginsenosides do not exist in isolation, they may have synergistic effects on each other. It is worth mentioning that the Millard reaction products generated during the processing of red ginseng have been gradually discovered and proved to have many meaningful pharmacological activities (Zhang et al., 2023; Kan et al., 2023; Xiao et al., 2022).

Currently, the global health industry is growing at an unprecedented rate, and the concept of preventive health care has led to an increased focus on natural and complementary therapies. As a medicinal plant with a long history, ginseng has been widely utilized in TCM and is increasingly valued in modern society for its multifaceted contributions to health (Ng, Bun, Zhao, & Zhong, 2023). The homology of medicine and food is an important part of TCM culture, which advocates the homology of medicine and food, and the complementarity of medicine and food (Tian, Ko, Luo, Li, & Yang, 2023). Under the concept of homology of medicine and food, ginseng is not only an herbal medicine for the treatment of a wide range of diseases, but also a complementary alternative to enhance the health of the general population. Ginseng has unique advantages in the field of research on the homology of medicine and food and this dual attribute greatly enriches the market application scope of ginseng products and provides new ideas for the transformation and upgrading of ginseng industry (Fan et al., 2024).

As a medicinal plant with a long history, *P. ginseng*, in the process of integrating tradition and innovation, has demonstrated its important contribution to the health industry and broad prospects, and has demonstrated its unique value and potential in the modern health industry, bringing more health benefits to consumers around the world. China government has emphasized the importance of putting people and life first, developing and producing more TCMs that are suitable for Chinese people's genetic inheritance and physical characteristics, and in particular, strengthening the development of TCM inheritance and innovation. We have reason to believe that with the help of modern medicine, ginseng industry will usher in a beautiful spring.

References

Fan, W. X., Fan, L., Wang, Z., Mei, Y., Liu, L., Li, L., Yang, L., & Wang, Z. (2024). Rare ginsenosides: A unique perspective of ginseng research. *Journal of Advanced Research, S2090-1232*(24), 00003–1.

Irfan, M., Kwak, Y. S., Han, C. K., Hyun, S. H., & Rhee, M. H. (2020). Adaptogenic effects of *Panax ginseng* on modulation of cardiovascular functions. *Journal of Ginseng Research, 44*(4), 538–543.

Kan, H., Zhang, D. X., Chen, W. J., Wang, S. H., He, Z. M., Pang, S. F., Qu, S., & Wang, Y. P. (2023). Identification of anti-inflammatory components in *Panax ginseng* of Sijunzi Decoction based on spectrum-effect relationship. *Chinese Herbal Medicines, 15*(1), 123–131.

Ling, J. Z., Li, S. S., Zhu, G. Q., Song, H., & Zhang, Z. R. (2024). Bibliometric review on *Panax ginseng*: Hotspots and trends analysis. *Chinese Traditional and Herbal Drugs, 55*(17), 5952–5963.

https://doi.org/10.1016/j.chmed.2024.09.007

Naseri, K., Saadati, S., Sadeghi, A., Asbaghi, O., Ghaemi, F., Zafarani, F., Li, H. B., & Gan, R. Y. (2022). The efficacy of ginseng (Panax) on human prediabetes and type 2 diabetes mellitus: A systematic review and meta-analysis. *Nutrients, 14*(12), 2401.

Ng, C. Y. J., Bun, H. H., Zhao, Y., & Zhong, L. L. D. (2023). TCM "medicine and food homology" in the management of post-COVID disorders. *Frontiers in Immunology, 14*, 1234307.

Tian, T., Ko, C. N., Luo, W., Li, D., & Yang, C. (2023). The anti-aging mechanism of ginsenosides with medicine and food homology. *Food* & Function, *14*(20), 9123–9136.

Xiao, S. M., Chu, Y., Chen, Y. J., Zhao, Q. H., Liao, B. S., Zhang, J. J., Gao, Y., Xu, J., & Chen, S. L. (2022). Genome-wide identification and transcriptional profiling analysis of PIN/PILS auxin transporter gene families in *Panax ginseng*. *Chinese Herbal Medicines, 14*(1), 48–57.

Xu, F. J., Valappil, A. K., Mathiyalagan, R., Tran, T. N. A., Ramadhania, Z. M., Awais, M., & Yang, D. C. (2023). *In vitro* cultivation and ginsenosides accumulation in *Panax ginseng*: A review. *Plants (Basel), 12*(17), 3165.

Yao, W., & Guan, Y. (2022). Ginsenosides in cancer: A focus on the regulation of cell metabolism. *Biomedicine & Pharmacotherapy, 156*, 113756.

Zhang, J. J., Chen, K. C., Yin, J. Y., Zheng, Y. N., Chen, R. X., Liu, W., Tang, S., Zhang, J., Zhang, M., Wang, Z., Liu, S., & Li, W. (2023). AFG, an important maillard reaction product in red ginseng, alleviates *D*-galactose-induced brain aging in mice via correcting mitochondrial dysfunction induced by ROS accumulation. *European Journal of Pharmacology, 952*, 175824.

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