

COULD PLANT COMPOUNDS HELP WITH AGEING DISORDERS?

Researchers are studying extracts of lychee and asparagus to see whether they could have uses in **SLOWING AGE-RELATED PROBLEMS** such as muscle loss and cognitive decline.

Healthy eating is important for healthy ageing. For example, the Mediterranean diet, which features rich and varied sources of polyphenols from fruits and vegetables, has been shown to have beneficial effects on health, such as lowering the risk of cardiovascular diseases and type 2 diabetes.

Polyphenols are known to have antioxidant and anti-ageing properties, however in general, they are very large molecules that are not easily absorbed by the body. To help solve this problem, scientists at AminoUp, a manufacturer of dietary supplements and functional ingredients based in Sapporo, Japan have been trying a number of approaches.

LYCHEE FOR MUSCLE MASS?

In one case, they selected the fruit of the lychee tree, *Litchi chinensis*, as a significant source of polyphenols, and developed a patented process to break these down into smaller molecules, and stabilize them with an extract of green tea. The AminoUp scientists were able to show that these smaller, proprietary stabilized polyphenols, were absorbed at a greater rate than unaltered lychee polyphenols, says Kohei Homma, senior executive director at AminoUp.

The study in ageing mice showed that supplementation with the proprietary lychee extract was associated with an increase in factors including muscle mass and grip strength compared to a placebo. This



▲ AminoUp's plant in Sapporo, Japan, which is certified for food safety management (ISO 22000), quality management (ISO 9001) and good manufacturing practices (GMP) for dietary supplements. AminoUp have also received halal and kosher certifications.

was followed up with placebo-controlled clinical trials in people¹. The proprietary lychee extract was also evaluated for its effect on blood flow, fat metabolism and the appearance of age-related spots and wrinkles.

ASPARAGUS FOR AGEING?

Cognitive disorders such as Alzheimer's disease are characterized by the presence of clumps of mutated proteins called amyloid-beta in the brain, and a major focus of Alzheimer's research is finding

ways to reduce the amount of these misfolded proteins.

A decade ago, AminoUp researchers began studying an important protein in the body called heat shock protein, one of the functions of which is to repair protein misfolding, which can occur as a result of stress.

"When we are exposed to physical or mental stress, our body can react by expressing the heat shock protein to deal with stress damage," Homma says. AminoUp was interested in finding out whether a natural compound could be used to boost the production of heat shock protein.

To this end, they screened hundreds of natural extract candidates, settling on a compound from the stem of the asparagus plant, *Asparagus officinalis*.

A study in mice engineered to develop a mouse equivalent of Alzheimer's disease suggested the proprietary asparagus extract they tested was associated with less accumulation of amyloid-beta in the brain, as well as an increase in the number of neurons².

"We believe it is the first and only known dietary ingredient with an effect on heat shock protein induction," Homma says. The company has also conducted a placebo-controlled clinical trial to find out whether the supplement had an effect on people with mild to moderate cognitive impairment³.

AminoUp is now conducting further studies to assess whether their proprietary extracts from lychee or asparagus plants might improve other objective measures of ageing. ■

REFERENCES

1. Peng, L-N. *et al.*, *Arch. Gerontol. Geriatr.* **13**, 104784 (2022).
2. Peng, Z. *et al.*, *J. Immunol. Res.* **2021**, 8121407 (2021).
3. Zenimoto, T. *et al.*, *Evid. Based Complement. Alternat. Med.* **2023**, 9960094 (2023).

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