



# Pips no longer winery waste

**T**HERE is more to grape pips than simply being something to spit out. Research is uncovering valuable pharmaceuticals in grape seeds that could add value to winery waste.

A team of medical scientists at Flinders University in South Australia has found that grape seed extract fed to mice that had been genetically engineered to develop Alzheimer's disease helped reduce the formation of clumps of amyloid-beta protein in the brain. These are thought to be a major cause of Alzheimer's disease.

Worldwide, more than 26 million people suffer from Alzheimer's disease and numbers are doubling every 20 years.

"This aggregation of amyloid will cause loss of nerve connections, cell death and inflammation in the brain, leading to cognitive decline," said

team leader Xin-Fu Zhou.

Grape seed extract made up two per cent of a diet fed to the transgenic mice for six months, after which the researchers observed their behaviour and brain pathology compared to a control group fed a normal rodent diet.

The extract contained nearly 600 milligrams per gram of polyphenols including gallic acid, catechin, epicatechin and proanthocyanids.

"We found that grape seed extract was a very powerful agent

in reducing amyloid-beta deposits in the brain," Prof Zhou said.

"It also produced marginal improvements in cognitive function and, most importantly, reduced inflammation."

The amyloid-beta levels in brain and serum fell 44pc and amyloid plaques were reduced by 70pc.

"We have also found that grape seed extract can prevent the oxidation of the brain protein," Associate Prof Yan-Jiang Wang, who also participated in the study, said.

"Another group in Mount Sinai school of Medicine (in the United States) have also found that grape seed extract can prevent the development of Alzheimer's disease by inhibiting the aggregation of amyloid-beta thus promoting the clearance of amyloid beta from the brain," he said.

Diets laced with curcumin, derived from turmeric, gave similar but less marked improvements.

Using the same mice, a CSIRO team led by Michael Fenech found that grape seed extract also prevented DNA damage.

"The level of damage to DNA, which is a fundamental cause of accelerated ageing and degenerative diseases, was reduced by including grape seed extract in the diet of these mice," said Dr Fenech.

Grape seed extract works by scavenging free radicals that cause inflammation and damage DNA. Weight for weight it is 20

times more effective than vitamin E and 50 times more effective than vitamin C.

Diets rich in anti-inflammatory agents also reduce the risk of developing other neuro-degenerative diseases such as Parkinson's disease.

A major benefit of grape seed extract, as opposed to synthetic drugs, is that it has been part of human diet for thousands of years. The amount of grape extract fed to the experimental mice is equivalent to less than six grams per day in a human diet.

Meanwhile, New Zealand biotech company NZ Extracts Ltd founded by Glenn Vile and Mud House Wines director Neil Charles-Jones has developed a water-based process for extracting polyphenols from fruit sources including grape seeds.

New Zealand sauvignon blanc grape seeds turned out to be super high in antioxidants.

Dr Vile has already conducted small scale trials in association with HortResearch that showed grape seed extract limited muscle damage in athletes by as much as 40pc and improved elasticity and repair when applied to the skin.

"In general, grape seed extract demonstrates a strong disease-modifying effect," Professor Zhou said. The effect of grape seed extract is significant and it is beneficial as a dietary supplement.

"It is a safe, natural product which contains 'goodies' that we shouldn't throw away," he said.

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By **FRANK SMITH**

## AT A GLANCE

- Extract could cut Alzheimer's
- Possible anti-ageing effects
- More effective than common vitamins



Yanjiang Wang and Xin-Fu Zhou have found that grape seed extract fed to mice can help reduce the symptoms of Alzheimer's disease.