

Found - the apple gene for red

November 30 2006



CSIRO researchers have located the gene that controls the colour of apples – a discovery that may lead to bright new apple varieties.

“The red colour in apple skin is the result of anthocyanins, the natural plant compounds responsible for blue and red colours in many flowers and fruits,” says the leader of the CSIRO Plant Industry research team, Dr Mandy Walker.

“Colour is a very important part of fruit marketing,” she says. “If fruit doesn’t look good, consumers are far less likely to buy it, no matter how good it might taste.

“As well as giving apples their rosy red hue, anthocyanins are also

antioxidants with healthy attributes, giving us plenty of reasons to study how the biochemical pathway leading to apple colour is regulated.”

A Post Doctoral Fellow with the team, Dr Adam Takos, used the latest molecular technology to measure how much particular genes were activated, or expressed, in apple skin as the fruit ripened and coloured.

“Apple growers have always known that apple colour is dependant on light – apples grown in darkness or even heavy shade don’t turn red when they ripen,” Dr Walker says. “That made it very likely that the gene we were looking for requires light to be activated.”

“By identifying master genes that were activated by light, Adam was able to pinpoint the gene that controls the formation of anthocyanins in apples, and we found that in green apples this gene is not expressed as much as in red apples.”

In collaboration with apple breeders at the Department of Agriculture and Food in Western Australia (DAFWA), the scientists were able to show that fruit colour can be predicted even in seedling apple plants by measuring the form of this gene that is present.

The new knowledge about how apple colour is regulated will give plant breeders the opportunity to use these molecular marker tests to speed up apple breeding and select for improved fruit colour. Dr Walker believes that this research could open the way to breeding new apple varieties.

“With a better understanding of how apple colour is controlled we can begin to breed apples with new and interesting colour variations,” she says. “We may even be able to breed apples that are better for you, though they already play an important role in a healthy diet!”

For more information on this research visit the [The gene for red](#)

[information sheet.](#)

Source: CSIRO

Citation: Found - the apple gene for red (2006, November 30) retrieved 17 April 2024 from <https://phys.org/news/2006-11-apple-gene-red.html>

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