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Roasting coffee beans creates antioxidants - UBC study

BY RANDY SHORE, VANCOUVER SUN FEBRUARY 3, 2011

Roasting coffee beans creates abundant stable antioxidants, which are believed to help protect your cells from damage and premature aging, according to a newly released study from the University of British Columbia.

And you might want to go for the medium rather than the dark roast if you want the maximum dose of antioxidants to battle the dark forces merrily destroying your cells. The beneficial compounds created by the roasting process start to break down with excessive roasting at high heat, said lead author Yazheng Lui, a master's student at UBC's faculty of land and food systems.

The work of Lui and her co-author professor David Kitts brings some clarity to a murky brew of previous research that had produced conflicting data about the abundance and nature of the antioxidant qualities of coffee, which had been attributed to caffeine and to the presence of naturally occurring antioxidants.

Green unroasted coffee beans do contain natural antioxidants called chlorogenic acids, which are believed to have antiviral and antibacterial properties, but about 90 per cent of those are destroyed by the roasting process, Lui said.

The good news is that roasting creates a whole new class of potent antioxidants called MRPs, Maillard Reaction Products. Maillard reactions are responsible for the changes in colour and flavour that occur when foods are roasted, toasted or fried.

"During the roasting process the [chlorogenic acids] are decreasing while the new antioxidants are increasing," she said. "We found that the main contributor to antioxidant activity is the product of roasting."

Because a dark roast at one coffee shop might only be considered medium at another, you can't always depend on the label to guide your quest to maximize antioxidants in your java. But the darkest roasts will be the lowest in chlorogenic acids and may also be lower in MRPs.

The high heat and longer roasting time that delivers the most flavour and colour also degrades the newly created antioxidants.

Don't worry if you prefer decaf. Caffeine is not required for the roasting process to create MRPs.

Roasting coffee beans also helps to stabilize the amount of antioxidants in the coffee, because the MRPs created by roasting degrade very slowly over time, while the naturally occurring antioxidants in green coffee beans degrade very quickly.

"In the six months that we were doing tests we found that the antioxidants in the green coffee beans dropped significantly," Lui said. "But in the roasted beans, it was the same."

rshore@vancouver.sun.com

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