

Study reveals blueberry secrets

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(PhysOrg.com) -- Blueberries are one of our favourite fruits and no wonder—they're tasty and they're good for us. They're rich in antioxidants, substances that can help reduce the natural cell damage in our aging bodies that can lead to cancer, heart disease and other ailments.

Now, a research team led by University of Victoria plant biologist Dr. Peter Constabel has become the first in the world to reveal—at a molecular genetic level—how [blueberries](#) ripen and produce antioxidants known as flavonoids.

“We already knew a lot about the chemical composition of blueberries, but until now very little about how flavonoid antioxidants are formed by the fruit as it ripens,” says Constabel. “This new knowledge has tremendous potential for BC’s blueberry industry and, ultimately, for our health.”

In the study, published recently in the international journal, *Plant Physiology*, the team used advanced genomics tools to identify a large number of genes in ripening blueberries. In the process, they quadrupled the number of newly discovered blueberry genes—information that is now available in public databases.

More specifically, the team identified genes that—as the berries ripen—are turned off during the molecular process that makes bitter (but healthy) compounds known as tannins and switched on when the berry’s trademark blue-purple flavonoid pigments are produced.

They also conducted a detailed chemical analysis of the flavonoids, and determined that the skin of blueberries contains the greatest variety and quantity of these health-promoting chemicals. And, working with researchers in Saskatchewan, they identified a plant hormone that appears to play a key role in blueberry ripening.

“Plant breeders can use our results to select for high antioxidant berry varieties and to try and get greater control over the ripening process,” says Constabel, noting that study partners included berry farmers and scientists from a range of government agencies in the agriculture, biotechnology and horticulture sectors.

Canada is the world’s third largest producer of high-bush blueberries. Ninety-eight per cent of the country’s \$1-billion blueberry crop comes from BC where more than 700 farmers produce over 40 million kg of berries annually.

The study is the first of its kind to look at blueberries from a molecular and multidisciplinary perspective, says Constabel. “I don’t know of any other [fruit](#) where all of these research tools have been applied in one study.”

Provided by University of Victoria

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