

Published by  
**Thomas J. Payne Market Development,**  
on behalf of the US Highbush Blueberry Council.  
All questions, comments and suggestions  
may be directed to:

US Highbush Blueberry Council's  
Food Technology Program  
PO Box 281525, San Francisco, CA 94128-1525  
Fax: (650) 340-8568 Email: [info@ushbc.org](mailto:info@ushbc.org)

**FOR ANSWERS TO YOUR BLUEBERRY QUESTIONS**  
contact the Blueberry Techline: 1-800-824-6395  
or visit us on the internet at <http://www.blueberry.org>

## Blueberries Are on a Diet... Most Every Diet!

There seems to be no end of diet programs, each one promising health, long life, good looks and even wrinkle-elimination. Almost all these diets, trendy and traditional, include blueberries.

Beneficial dietary characteristics of blueberries are desired for many reasons. Containing virtually no fat (0.33 g/100 g), blueberries are permitted in a variety of popular weight loss programs. Anthocyanins and ellagic acid in blueberries have been found to possess potential cancer- and heart disease-preventing antioxidant properties. Blueberries are a source of fiber, contain vitamin C and minerals, such as potassium and phosphorus. (More benefits are on page 2.)

In the Five-A-Day™ program developed as a partnership between the National Cancer Institute and the Produce for Better Health Foundation, blueberries are included in the blue/purple category of foods which "contain health promoting phytochemicals such as anthocyanins and phenolics, currently being studied for their antioxidant and anti-aging benefits."

Blueberries also fit into a variety of diets. They are perfectly acceptable in vegan diets which eliminate all saturated fat. They are enjoyed by those following raw food diets, as well as Kosher and Halal diets. Blueberries are easily digestible making them a perfect choice in dietary plans for children and the elderly. Plus blueberries add rich color to menus providing interest to both the plate and the palate.

Regardless of dietary option, blueberries are a good fruit choice. Based on research documenting health benefits and the fact that blueberries are a well-known and well-liked fruit that tastes great, they should be included and enjoyed.

### Footnote:

In recent years, Americans' diets have consisted of excessive calories, saturated and trans fats, cholesterol, added sugar, salt and low fiber. In 2000 poor diet and physical inactivity was the second leading cause of death in the US after tobacco (1). Data collected on the fattening of America by the US Centers for Disease Control ([www.cdc.gov](http://www.cdc.gov)) on overweight and obesity trends, is depicted on this website. In tandem with weight gain are health problems, including type-2 diabetes, and coronary heart disease.

Yet with all the diet hype these days, nutritionists continue to recommend that the way to a healthy lifestyle is to follow simple guidelines. Eat a variety of foods within and among the basic food groups while staying within energy needs. Control calorie intake. Be physically active every day. Increase intake of fruits, vegetables, and whole grains. Choose fats wisely. Choose carbohydrates wisely. (There are good carbohydrates, such as whole grains, fruits and vegetables.) Choose foods with little salt. If you drink alcohol, do so in moderation, and keep food safe to eat.



## Reasons to Use BLUEBERRIES

That big sigh of relief you hear is from food product designers who can count on the delicious and healthful blueberry as the "can do" fruit. Even more important, the blueberry contains an outstanding combination of health benefits that fit most every diet.

- Virtually no fat
- 14 g. carbohydrate/100 g.
- Good source of fiber
- Low calorie
- Low sodium
- Low cholesterol
- Organic options
- Antioxidant benefits
- Variety of formats
- Anthocyanins
- Ellagic acid
- Quercetin
- Catechins
- Carotenoids
- Vitamins C and E
- Folate, riboflavin, and niacin
- Minerals: potassium, manganese, magnesium, iron
- Real fruit
- Good piece identity
- Easy to use
- Good availability
- Consumer friendly
- Kosher available
- Great taste...

## Bountiful Blueberry Bran Muffins

Blueberries add flavor and color to fiber-rich muffins. Ingredients, such as flaxseed, whole wheat flour, almond meal, and soy milk complement our favorite berry in healthy formulations!

- 1/4 cup milled flaxseed
- 1/2 cup rice/wheat bran
- 1/4 cup almond meal
- 1-1/2 cups plain soy milk
- 1 large egg
- 1/4 cup canola oil
- 1 tablespoon lemon zest
- 1 teaspoon vanilla
- 1 cup whole wheat flour
- 2 tsp. baking powder
- 2 cups frozen IQF blueberries

### One Muffin:

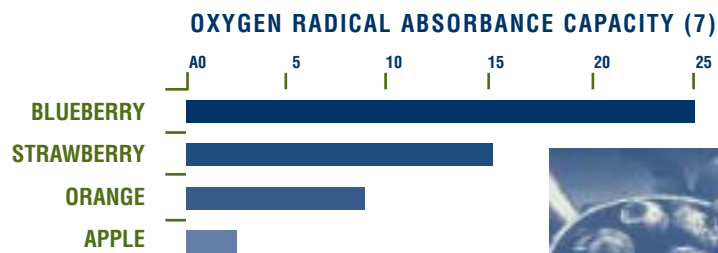
- Low calorie
- Fiber source
- Antioxidant-rich Blueberries
- Real fruit
- Delicious

**PROCEDURE:** In a large mixing bowl, mix together the flaxseed, bran and soy milk. Add egg, oil, lemon zest, and vanilla. Mix to incorporate. Gently stir in the blueberries. In a separate bowl, combine the flour, baking powder, and almond meal. All at once, add the dry ingredients to the wet mixture just until blended. Deposit batter into prepared muffin tins. Bake about 30 minutes in preheated 375°F oven. Makes 18 muffins.

**One Muffin:** • 6 g. fat • 11 g. carbohydrate • 4 g. protein • 3 g. fiber • 110 calories

# Blueberries Powerful Antioxidant!

Here's another reason to include blueberries in the diet. Of 40 fresh fruits and vegetables tested by the Agriculture Research Service, the leading scientific research agency of the U.S. Department of Agriculture (USDA), blueberries ranked highest in antioxidant activity. An assay, called ORAC (oxygen radical absorbance capacity), quantifies the antioxidant-capacity of foods. (7). Blueberries provide 2400 ORAC units per 100 grams. From an antioxidant capacity standpoint, 100 grams (3.5 oz) of fresh blueberries could deliver the equivalent antioxidant capacity of five servings of some fruits and vegetables. The term, antioxidant, refers to substances which help protect the body against free radicals, unstable and highly reactive substances produced through normal metabolic processes in our body or generated via exposure to environmental factors such as cigarette smoke, pollutants, and UV light.



Free radicals can damage DNA, proteins, lipids and membranes of cells in the body. By helping to protect the body against free radicals, antioxidants may also help protect against chronic diseases such as certain cancers and heart disease.

References:

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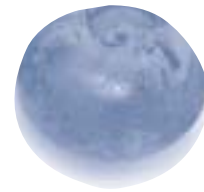
## Cutting Cholesterol with Vaccinium Berries

A compound found in blueberries called pterostilbene may have the potential to be developed into a nutraceutical for lowering cholesterol, particularly for those who do not respond well to conventional drugs, according to study authors from the USDA's Agricultural Research Service (ARS). The authors indicate that the compound found in Vaccinium berries could be a potent weapon in the battle against obesity and heart disease through its cholesterol-reducing potential. Head researcher, Agnes M. Rimando and her associates previously showed that this compound may help fight cancer. An abstract of the study is found on the Agricultural Research Service website ([http://www.ars.usda.gov/research/publications/publications.htm?seq\\_no\\_115=158350](http://www.ars.usda.gov/research/publications/publications.htm?seq_no_115=158350)). The researchers also studied the presence of resveratrol and piceatannol. According to the technical abstract, "These naturally occurring stilbenes, known to be strong antioxidants and to have cancer chemopreventive activity, will add to purported health benefits derived from consumption of these small fruits." The research has also been published in the Journal of Agricultural and Food Chemistry (2).

## Blueberries in the Diet Could Influence Aging

Diet and aging go hand-in-hand and as the American population ages, health and well being will draw increasing interest. Research using blueberry supplementation provides hope. Previous studies of older laboratory animals consuming blueberry supplemented diets have shown measurable improvements in memory, coordination and balance. For example, research funded by

and the US Department of Agriculture (3) show that blueberries may act to protect the body against damage from oxidative stress, one of several biological processes implicated in aging and in the development of a number of neuro-degenerative diseases. Since then research has been published on blueberry supplementation and the potential for overcoming a predisposition to Alzheimer's disease through diet (4), and research using laboratory animals continues to shed light on the potential benefits of blueberry supplementation (5, 6).



## Blueberry Formats to Meet Manufacturer Needs

In addition to fresh and frozen blueberries, a variety of formats is available for use in dietary product formulations. For example, freeze-dried blueberries, blueberry flakes, dried blueberries, and blueberry juice concentrate may be incorporated into bars, mixes, and cereal products. Blueberries work nicely with soy, bran, and yogurt coatings. Check with your supplier directly for buying specifics. A supplier list is found on the web at <http://www.blueberry.org/suppliers.html>

### F O R M A T S   A N D   D E S C R I P T I O N

#### D R I E D   B L U E B E R R I E S

Made by removing most moisture from the blueberry. It works well in dry mixes and other applications. Available with or without infused sugar; also diced. May be further processed to dried fruit specs. Dehydrated blueberries and formats are available in poly-lined corrugated cartons (10 lb.) and other custom sizes. Moisture: 11-18 %   Water activity: 0.5-0.6   Shelf stable in a cool, dry place.

#### F R E E Z E - D R I E D   B L U E B E R R I E S

Freeze-dried blueberries maintain fruit size and provide real fruit flavor bursts. Great in cereal applications. Available in poly-lined corrugated boxes (10 lb) and other custom sizes.

#### D R U M - D R I E D   B L U E B E R R Y   P O W D E R

Moisture content: 3-5%. Available in various screen sizes and granules. Store in a cool, dry place 70°F or less, away from direct sunlight.

#### B L U E B E R R Y   B I T S   A N D   C H I P S

Composite bits of blueberries with substantial amounts of fruit! Chips and bits work well where fresh and frozen fruit will not fit.

#### B L U E B E R R Y   J U I C E   C O N C E N T R A T E

This format contributes flavor and color to finished products. Brix: 45-65   pH: 2.1 - 2.7   Storage: 0 to -10° F (-18 to -23° C) Available in plastic pails and poly-lined metal drums.

#### B L U E B E R R Y   E S S E N C E

Intense blueberry essence unmatched by artificial flavoring. Used to boost blueberry flavor in tandem with berries. Available in 5 and 6 gallon plastic pails.

