University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Historical Materials from University of Nebraska-Lincoln Extension

Extension

1-1-2003

NF581 Aronia Berries

Durward Smith
University of Nebraska--Lincoln, dsmith6@unl.edu

Carol Ringenberg

Follow this and additional works at: http://digitalcommons.unl.edu/extensionhist

Part of the Agriculture Commons, and the Curriculum and Instruction Commons

Smith, Durward and Ringenberg, Carol, "NF581 Aronia Berries" (2003). *Historical Materials from University of Nebraska-Lincoln Extension.* Paper 40.
http://digitalcommons.unl.edu/extensionhist/40

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

NebFacts

Published by Cooperative Extension, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln

NF581

Aronia Berries

By Durward Smith, Extension Food Scientist
Carol Ringenberg, Extension Educator

***Aronia melanocarpa* Michx.**	
Common Name:	Black chokeberry
Family:	*Rosaceae*
Type:	Woody shrub
Size:	3' - 6' high, equal width
Hardiness:	Zone 3a USDA
Native Range:	Eastern U.S.

Aronia, sometimes called black chokeberry, is a deciduous shrub native to eastern North America. It is sometimes used in landscapes for its creamy white flowers in late spring, and colorful flame red autumn foliage contrasted with dark berries. Aronia is cold hardy and its late blooming period avoids damage by spring frosts. The plants tolerate various soils but prefer slightly acidic soils. Mature plants may be up to 8 feet tall and have up to 40 canes per bush. Numerous suckers are produced from the roots and fill in the space between the plants like a hedgerow. Thinning of older canes is recommended every few years to avoid dense growth and poor light exposure. Reduced light decreases productivity. The plants are well adapted to many areas of North America and appear to be little affected by either pests or disease. Aronia clearly has potential for use as an alternative commercial fruit crop that may be suited to organic farming.

Fruit Characteristics and Use

Aronia was well known to natives and early settlers but has not been commercially cultivated in the United States since early in the 20th century. Aronia berries can be canned whole or the juice extracted for jelly making, candies, pie and cookie fillings, yogurt, sorbet, flavored milk and other uses. In Russia, Denmark, and Eastern Europe the strongly colored and pungently flavored juice is widely used for juice and wine production.

The pea-sized, violet-black berries are harvested in autumn and have a strong, stable natural color with a dry and sour flavor. Yields of up to 38 pounds (17 kilograms) per bush have been reported from mature plantings in Europe. The fruit can be mechanically harvested with equipment similar to that available for blueberries. In smaller plants the fruit is hand harvested by cutting the fruit clusters. Harvest is usually in late August to September when the fruit is at 19° to 21° Brix (percent sugar).

Aronia juice has been increasingly used in the food industry to supply a natural red color in products with poor color stability. Commercially, aronia is mainly used for juice either alone or blended with other fruit juices such as apple or grape. Other uses include food coloring, tea, syrup and fruit spread coloring. In Europe, the juice is often blended with apple juice to give the juice a blush. In Russia, aronia and apple juices are combined and fermented to produce red wine. In Lithuania, dessert wines are made using aronia juice alone or blended with other fruits. Reports from the Ukraine describe aronia as improving the color, tannin level and sugar of grape wines. The main commercial source for the juice comes from fruit grown in Europe, but there is a small commercial grower in Iowa and another in Oregon. Test plantings have been established by the USDA Plant Materials Program at 11 sites in North Dakota, South Dakota and Minnesota.

Fruit Processing

Commercial juices are produced by pressing ripe berries then filtering and clarifying the juice. To reduce the tannins, a fining material such as gelatin is often added prior to filtration. The tannin will sometimes form complexes that cause cloudiness in clarified juices. Reducing tannin levels also yields a juice with a less astringent flavor. Clarified juices may then be bottled and pasteurized or concentrated for use as food ingredients. Whole berries may be pulped to produce purée. This is a highly colored product of smooth consistency with the seeds and skin removed. Hot break pulping improves product quality and stability. This product is frozen and used as a food ingredient in spreads and sauces. There are also reported uses of the dried powder of the berries as food ingredients.

Home Preparation

There is little information about home juice extraction and aronia product formulation. Juice extraction may be done in a manner similar to that used for grapes. Hot extraction has been reported to give a better-flavored product with less "green" flavor and better color. This does slightly dilute the juice and produce a juice lower in total acidity than is usually needed for jam making or wine making. Adding acid could compensate for the deficiency. The berries may be frozen and the juice extracted later. Berries frozen before grinding or crushing may produce higher juice yields. Sugar may need to be added to juices or syrups to counteract the strong flavor of the tannins.

Health Benefits

Aronia juice contains very high levels of anthocyanins (source of red color) and flavonoids. Levels of anthocyanins and flavonoids are over five times greater than those found in cranberries. Aronia also has been reported to contain antioxidants, polyphenols, minerals and vitamins. It has been alleged that some of these chemicals specifically reduce the potential for cancer and heart disease.

References

Dirr, Michael. *Manual of Woody Landscape Plants*. Champaign: Stripes Publishing, 1990.

Griffiths, M. *The Index of Garden Plants*. Portland: Timber Press, 1994.

Highshoe, Gary L. *Native Trees, Shrubs, and Vines for Urban and Rural America*. New York: Van Nostrand Reinhold, 1988.

Wyman, Donald. *Wyman's Gardening Encyclopedia*. New York. MacMillan, 1986.

Links

http://www.itis.usda.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=25125
Aronia Medlink is the IT IS Standard Report Page giving scientific information on taxonomy.

http://www.bbg.org/sci/nymf/encyclopedia/ros/aro0030.htm
Aronia melanocarpa (Michx.) Ell. The Black Chokeberry from Brooklyn Botanic Garden. Has references and information.

http://www.botany.utoronto.ca/courses/BOT307/DFamilies/307D2Aronia.html
Rosaceae: Maloideae-aronia melanocarpa has sources and information about Aronia fruit.

http://www.orst.edu/food-resources/a/aronia
Oregon State University brief information on aronia.

http://www.hedgerows.com/ubcBotGdn/UBCResearch/intro-aronia.htm
University of British Columbia information on aronia varieties.

File under: FOODS AND NUTRITION
D-3a, Fruits and Vegetables
Issued October 2003

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska–Lincoln cooperating with the Counties and the United States Department of Agriculture.

University of Nebraska–Lincoln Extension educational programs abide with the nondiscrimination policies of the University of Nebraska–Lincoln and the United States Department of Agriculture.

© 2005, The Board of Regents of the University of Nebraska on behalf of the University of Nebraska–Lincoln Extension. All rights reserved.