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Development of Cookies Containing Aronia Berry Juice

Introduction:

The aronia berry, also known as a chokeberry, is a super-fruit that is rarely consumed fresh because it has a rather bitter taste. However, they contain many beneficial health effects such as potentially reducing abdominal obesity in post-menopausal women (Kardum et al., 2014). Aronia berries have also been found to retard age-related cardiovascular system changes in rats supplemented with their juice (Daskalova et al., 2015). Since there are not a lot of recipes that contain aronia juice and those that do are primarily for smoothies, this project was meant to create new, tasty recipes that contain these berries in order to encourage their consumption.

Objectives:

- To create two cookie recipes, one sugar-based and one chocolate-based, that incorporate aronia berry juice
- To encourage the consumption of aronia berries and thus increase their beneficial health effects

Methods:

The methods for the generation of both cookie recipes are the same. First, a base cookie recipe was found, a few batches were baked, and those cookies were tasted to ensure a tasty base cookie. After both a sugar cookie base recipe and chocolate cookie base recipe were found, the aronia berry juice was added in varying amounts to determine the optimal amount added to the base recipe. The aronia juice was 100% pure concentrate pictured to the right. Multiple batches of each type of cookie were created in order to not only determine the optimal amount of aronia berry juice added to the recipe as well as to determine repeatability. Each batch was then tasted to ensure the taste of the cookie was not negatively impacted by the addition of the aronia berry juice.



Results:

At too little aronia berry juice added, there was no discernible aronia berry flavor. At too much aronia berry juice added, there was a negative impact on texture and an increase in cooking time. At the optimum aronia berry juice, the aronia berry flavor was detectable, but not overpowering and the texture of the cookie was not effected. The sweetness of the cookie also allowed for the aronia berry flavor to lose the bitterness of the fresh berry and taste similar to a cranberry. The aronia berry juice also acted as a natural food dye turning the cookies a purple color. This effect was present even at small amounts of aronia berry juice and was more prevalent in the sugar cookie which would normally have a light brown color than the chocolate cookie which would normally have a very dark brown color. The products of each of the final recipes can be seen in the picture below.



Conclusions:

The results suggest that aronia berry juice can be successfully incorporated into cookie recipes. The ability of the aronia berries to be incorporated into cookies also suggests that they can be utilized in other recipes that call for fruit juice. The color of the cookies suggest that aronia berry juice can be utilized as a natural food coloring. The similarity in taste to cranberries means that aronia berries could be substituted in recipes containing cranberries. The spread of information on aronia berries and potential recipes including them would encourage consumption and enable their health benefits to become more widespread.

References:

- Daskalova, Elena, et al. "Antiatherogenic and cardioprotective effects of black chokeberry (Aronia melanocarpa) juice in aging rats." Evidence – Based Complementary and Alternative Medicine, vol. 2015, 2015. Gale Academic OneFile, https://link-gale.com.proxy.lib.iastate.edu/apps/doc/A458645846/AONE?u=iastu_main&sid=AONE&xid=cbb347fc. Accessed 16 Feb. 2020.
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