



Backyard Wisdom • September 2017

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Anthocyanins

Can you see the red color of the spring foliage on this Burr Oak? It looks like fall color and in fact this is the same dynamic that goes on every fall. The color is a pigment called anthocyanin, which is responsible for red and purple fall color. But what is it doing in the young spring leaf tissue? Red Anthocyanins are one of the 3 plant pigments. Carotenoids providing orange colors like carrots and chlorophyll, which we all know, is green. These three pigments are present in leaves all the time but the green from chlorophyll usually dominates.

We used to think that as chlorophyll left the leaf, just before winter, the other pigments were uncovered when the dominant chlorophyll made its exit. That is true, but it isn't the whole story. It turns out that anthocyanins are not just pretty in pink. They are actually the rear guard (fall) and the advance guard (spring) of the trees defense against freezing, desiccation or disease and insect attack.

They concentrate sugars and compounds (polyphenols) that inhibit assaults on vulnerable tissue. Those smart trees that make beauty out of a fight for survival. But wait, there's more! Those pretty pigments can **defend us too**. You've heard that fruits and vegetables that have strong pigmentation, blues, reds and yellows are disease fighters for us when we eat them. That's those anthocyanins and carotenoids of fall color fame. But that's not all, when plants are attacked by insects or diseases they produce more of those compounds that help us fight disease when we eat them. You've heard of antioxidants, polyphenols, or flavonoids. It's just the opposite of what a normal consumer would think isn't it?



Spring Color on a young Burr Oak tree, anthocyanins. *Photos by Lesley Bruce Smith*



That a fruit or vegetable that has a few spots or holes is healthier for us to eat? That's the truth of it though, I still balk at buying wholly fruit. When a plant is sprayed to prevent bugs, as is the case with conventionally grown food, it will not produce those disease fighting chemicals that keep us healthy. So the next time you see fall or spring color, think of a beautiful and delicious fight for survival. And remember that eating the wholly fruit could be a holy act and could be a boost for your body in fighting for it's survival.