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Beta-glucans and Anthocyanins in Barley for Human Food

β-glucans and anthocyanins hold nutritional value and are present at relatively high concentrations in barley. Purple, blue, and black barley were tested for the sake of improving beer and feed production. With the use of reagents and spectrophotometry, it was possible to measure the concentrations of each line of barley. Anthocyanin pigments because of antioxidant activity protect from many illnesses, such as cardiovascular disease. β-glucans can assist with human illnesses such as cancer and diabetes. A pH diffusion method was used in order to extract anthocyanins from ground barley. The obvious sign of the presence of anthocyanins was a pink-reddish haze in an acidic solution. β-glucans concentrations were measured in a photometric analyzer. There were significant differences between purple, blue, and black barley concentrations. Results showed increased concentrations of anthocyanins and β-glucans in purple and blue barley where black barley lacked in these nutritional qualities. Quantitative concentrations were compared to qualitative picture scans of each barley line to examine the colors of the seed coat. It was determined that select purple and blue barley had the highest concentrations of anthocyanins and β-glucans. Crossing these lines with low protein lines would introduce the idea of producing beer with added health benefits. Future research would be done to ensure anthocyanin and β-glucan molecules would be present through a malting process.