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*True Colors: What Cabbage Juice Reveals*

The purpose of this project was to identify unknown substances using natural acid-base indicators and observe how they react. The researcher predicted that pH values of many substances are capable of being identified by applying a natural acid-base indicator, and that it would show a color change. The results showed that the hypothesis is supported because many of the different substances showed colors. After the researcher applied different substances such as baking soda, cream of tarter, and vinegar to cabbage juice in a test tube, the colors revealed themselves.

The tests were done 12 times. Multiples of the substances mixed with cabbage juice showed bright and vibrant colors. Variations along the color spectrum showed relative strengths of acids or bases. Although some of the colors did not change, the color of the cabbage juice, this actually indicated neutral pH. If the colors turned red, it meant that the substance is very acidic and had a pH of about 2. If the color changed to greenish yellow, it had a pH of 12 and it was basic. If the color is blue-green, it had a pH of about 10 and that was basic too.

The researcher's hypothesis was supported by the data collected. Samples of both known and unknown identities could be classified along the pH spectrum based on the color that turned the cabbage juice indicator. This type of project has applications in determining how strong an acid or base any substance you are using possesses.