

## Developing a Taste for Acidulants

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While food acids such as citric acid are commonly used in food products, many technologists and manufacturers often overlook the impact of acid selection on the flavour of the final product.

While food acids usually have a significant impact on the stability of foods by reducing pH, some products can taste better. Products with a pH below 4 are generally recognised as being high acid foods and are not a major risk for the growth of pathogenic bacteria.

The control of pH is also important for many ingredients such as stabilisers. High methoxyl pectins, used in the manufacture of jam products, require a pH range of 3.0 to 3.4 to achieve optimum gel strength. Lowering the pH of food systems can also retard the activity of some enzymes involved in the discolouration of fruits and vegetables.

pH also has a significant influence on the development of colour, particularly natural colours. At pH 2 the natural colour carmine is Strawberry red, at pH 4 it is Raspberry red and at pH 7 it develops pale pink hues. Carmine will generally precipitate in a pH 7 solution.

From a flavour standpoint, the pH range of around 2.4 – 2.8 is about the limit for taste. Anything below this tends to be too tart to be palatable. However, products such as fruit fillings or jams with 65% sugar will be more acceptable than unsweetened beverages at this pH range. Using the correct sugar-to-acid ratio softens the impact of the acidity. If the balance is right the product is not perceived as being excessively sour.

Some acidulants tend to impart their own characteristic flavour, with acetic acid, or vinegar, being good examples. Both acetic acid and lactic acid have an antimicrobial effect and are the basis for preservation by fermentation in products such as sauerkraut and pickles.

The profile of the acid should match the profile targeted in the final product. Often the best flavour is achieved by using the acid usually associated with a particular food. For example citric, malic and tartaric acids typically give the best flavour perception in fruit flavoured products.