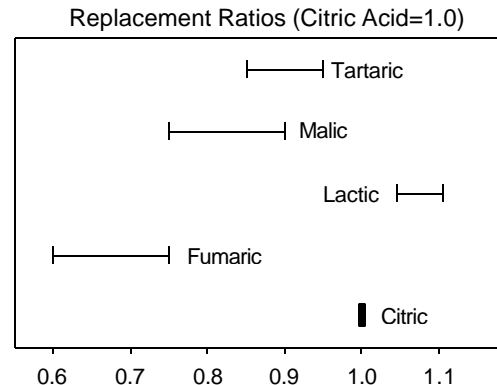


# Fumaric Acid in Fruit Juice Drinks

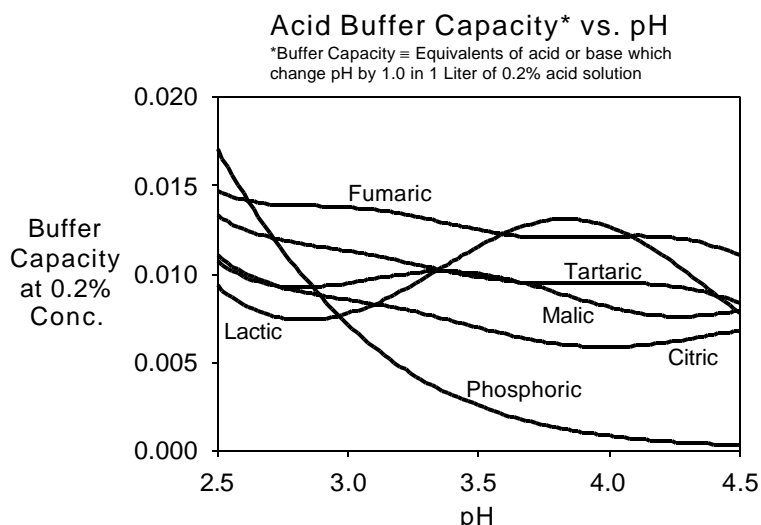
## Provides more Sourness than other Acidulants

Fumaric Acid provides more sourness per unit weight than other acidulants used in fruit juice drinks, as shown by the replacement ratios at right. The use of Fumaric Acid **substantially reduces the acidulant cost** in a fruit juice drink.



## Provides more Buffering Capacity than other Acidulants

As shown in the graph, Fumaric Acid provides more buffering capacity than other acidulants when the pH is close to 3.0. Using Fumaric Acid helps to stabilise the pH of a fruit juice drink, which in turn **stabilises colour and flavour**.



## Effective as an Antimicrobial Agent

The hydrophobic nature of fumaric acid makes it an effective antimicrobial agent. Hydrophobicity is important because the microbial cell wall normally contains lipid material. Hydrophobic organic acids can interact with this lipid material in a way that disrupts microbial activity.

Fumaric Acid in combination with Sodium Benzoate was shown to have a bactericidal effect against *E.Coli O157:H7* in apple cider. A 5-log reduction was achieved by holding the cider at 25°C for 5 hours after the addition of 0.15% Fumaric Acid and 0.05% Sodium Benzoate. The cider was at pH 3.2-3.4.

Reference: Combs, J.E. & Beelman, R.B. 2002. Addition of Fumaric Acid and Sodium Benzoate as an Alternative Method to Achieve a 5-log Reduction of *E.Coli O157:H7* Populations in Apple Cider. *J. Food Protection* 65(3):476-483.

**RECOMMENDATIONS FOR USE: Use 0.12 – 0.30%; dissolve in the beverage after benzoates, if used, have been completely dissolved.**

**BARTEK**

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