Lactic acid bacteria (LAB), particularly heterofermentative species, play a crucial role in sourdough fermentation. These bacteria contribute to acidification, producing lactic acid, CO2, acetic acid, and ethanol through heterolactic fermentation of glucose. This process lowers the dough pH to below 4.5.

The ratio of lactic acid to acetic acid, known as the fermentation quotient (FQ), is a critical factor influencing sourdough bread flavor. An FQ between 2.0 and 2.7 is optimal, and this range depends on the dominant LAB species (homo or hetero-fermentative). The FQ ultimately impacts the sensory characteristics of sourdough breads.