Summary

Enzymes are proteins that are produced by all living organisms. They speed up chemical reactions selectively as part of essential life processes such as digestion, respiration, metabolism and tissue maintenance. In other words, they are highly specific biological catalysts. The enzymes work under more or less mild conditions (they have to, in order to operate in living cells and life sustaining environments), making them ideal catalysts to use in food technology, in which the manufacturer wants to modify food raw materials selectively without destroying essential nutrients. The historical uses of enzymes to make beer, wine, cheese and bread are elegant examples of the industrial exploitation of the power and selectivity of enzymes. Early food enzyme technologists were clever craftsmen, but they did not realize that this is what they were doing, and that they could have adopted such a splendid job title. To understand modern food enzyme technology, it is important to realize that these early enzymatic processes were not only fermentations, but also complex and coordinated enzyme-mediated processes. The enzymes were then, and remain, essential for the provision of fermentation substrates (beer and bread), the development of flavour and aroma (wine) or the creation of the very structure of the product (cheese). Enzyme production and application in the food manufacturing industry is based on a profound understanding of the role of enzymes in traditional foods, from which technologists have improved the basic processes to supply bigger markets with safer and higher quality products. This understanding, together with improvements in enzyme sourcing and production technology, has also yielded novel enzyme technologies to create new foods and food ingredients.