Product shelf life is defined as the period of time during which the quality of the packaged food remains acceptable. This period may range from a few days to over a year, depending on product characteristics, food processing, packaging, and storage conditions. Conventional food preservation methods often result in a number of undesired changes in foods, such as loss of smell, color, flavor, texture, and nutritional value. In addition, consumers from developing countries are more concerned with the nutritional and sensory aspects, as well as the safety, of the food they eat. Therefore, a more differentiated food product assortment and novel preservation strategies are necessary for today’s increasingly demanding consumers. Considering the importance of packaging in determining product shelf life, the correct approach allows considering on the same level of importance product development and packaging system. Food is packaged to preserve its quality and freshness. Packaging acts as a physical barrier to gas, moisture, external compounds, and microorganisms that could be detrimental to food. The preservation role is a fundamental requirement of food packaging since it is directly related to consumer safety. Numerous variables play a significant role in establishing package performance, such as the initial food quality, processing operations, size, shape and appearance of the package, distribution method, and package disposal. Generally speaking, packaging properties can be grouped into mechanical, thermal, optical, and mass transport properties, but the extent to which packaging plays a preservation role is largely dependent on the barrier of the material to environmental factors that cause spoilage. There are occasions when the transport of gases is desirable, as happens in fresh-cut produce where the exchange of gas through the package is necessary to accommodate respiration and transpiration, and cases where high-barrier properties are preferred. Similarly, if the package is too permeable to water vapor, it causes a moisture-sensitive food to have less crispness and, consequently, a shorter shelf life; on the other hand, water vapor escaping from the package can provoke undesirable textural changes in wet food. For a specific shelf life package characteristics can be determined from the interactions between food, packaging, and environment. The current section aims to review a number of case studies related to various food categories where the proper selection of packaging
conditions may greatly prevent product deterioration, thereby promoting a significant shelf life prolongation. Liquid foods, minimally processed products, dairy food, and meat- and fish-based goods will be taken into account as main food categories. The main spoilage changes that affect these products, as well as the traditional processing and preservation techniques, are reviewed. Additionally, the various chapters focus on the keys to the production of safe foods and, in particular, on some successful combinations of inhibitory processes based on the application of various mild treatments that take advantage of the synergisms among the different preservation hurdle technologies.