The earliest antioxidants suggested for stabilization of fats and oils against oxidation were natural products, but they were soon replaced by synthetic antioxidants. They had several advantages, such as reliable and constant activity, sufficient purity, they were readily available on the market at acceptable price, they were soluble in lipids, and were proved as safe by many sophisticated biological tests. There is a trend in the last few decades to avoid additions of synthetic substances to foods so that food manufacturers are looking for natural antioxidants. Almost all plant products contain natural antioxidants, at least in traces, so that numerous raw materials are at disposal. Herbs and spices are often rich in phenolic substances so that they could be added to foods without any prefractionation or after a simple technological process. Consumers would have no objections against their use. Rosemary or sage resins and catechins from tea leaves are produced on commercial scale. Natural antioxidants have, however, several disadvantages. They are no pure substances, content of active substances is variable, and even extracts or concentrates have low activities so that they should be added at relatively high amounts. Little is known about their safety, resorption in the intestine, and fate in the human body. Antioxidants react with free radicals forming oligomers, copolymers, quinones and their reaction products. Almost nothing is known about the safety of reaction products. The application of nature-identical synthetic products, such as tocopherols or ascorbic acid esters, would be good compromise. Fortunately, the research on natural antioxidants is very intensive so that knowledge still lacking could be available in near future.