Investigation of encapsulation technology for flavor substances

Jinn-Tsyy Lai*, Chiao-Ying Huang, An-Chi Wu, Chii-Cherng Liao

Bioresource Collection and Research Center

Food Industry Research and Development Institute
jtl@firdi.org.tw

Abstract

For the living trend of modern society, the demand of functional food is growing worldwide. In particular, the gross rate of total sales will be up to 6.5% in Asia Pacific area, where the healthy food becomes really promising for increasing population of senior citizens. Most of the products are presented as drink, sachet powder, flavored milk or curd outcome. However, the consumers will have an unpleasant feeling or the product is more perishable if the flavor substances are introduced. Therefore, developing an encapsulation to protect the product from oxygen, light, or heat stress and disguise the over release of flavor substances during the manufacturing process and/or long term storage is rather important.

In this research, lemon essential oil with high volatility and fish oil with particular peculiar smell were examined. Through matrices screening and processes planning, a potential encapsulation practice consisting of over 40% encapsulation efficiency was developed. According to the control release curves based on different temperatures, the percentage of volatility to the encapsulated product will remarkably lower 70% compared to the untreated sample. With the addition of this potential technique, the development of functional foods is more and more attractive and comprehensive. Besides the various feature products could be derived for taste-masking consideration, this protocol can also enhance the bioavailability and stability of the target compounds. In that case, the purchasing intention of public consumers will be enhanced obviously whether for health assistance or eating pleasure.