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Biochemistry and biotechnology in agriculture and food industry

Abdelaziz Ghanemi[1,2]

[1]Key Laboratory of Animal Models and Human Disease Mechanisms, Kunming Institute of Zoology Chinese Academy of Sciences, Kunming, Yunnan Province, (CHINA)

[2]University of Chinese Academy of Sciences, Beijing, 10049, (CHINA)

E-mail : ghanemiabdelaziz@hotmail.com

The advances in divers biological fields have been an addition to both agriculture and food productions. Food security[1] issue increased the need of further development toward crops production. Importantly, chemical and genetic methodologies represent emerging precise tools to achieve such goals. In addition, diet requirement for some metabolic diseases and industrial standard requires specific conditions in food processing and productions.

Biochemistry provides a variety of molecules that are added to foods and beverages to modify the taste improve the consistency or preserve the elements although some additives are required and others are not such as the colorants. Lipids are widely used in food industry both as nutritive elements (oil and batter) and as additives. Furthermore, the importance given to the lipids come from both the biochemical role they play within the body and from the bad impact they can have on health such as the atherosclerosis[2-4] and other diseases.

On the other hand, neohesperidin dihydrochalcone and cyclamate are sweeteners that synergistically potentiated cell response to sucrose which is mediated by G protein coupled receptors (GPCRs)[5,6] which constitute a starting point to develop further sweeteners[7] especially with the new advances we have regarding the properties of the GPCRs[8-12] and provide novel products for specific diets requirements.

The use of bacteria and yeasts in food production has always represented an important approach such as bread preparation[13,14]. In addition, enzymes represent another important element for the food industry[15-18] due to the biochemical properties they have. Genetically selected and modifies plants[19] constitute a food source with an increasing important in industry mainly with the development process of crop breeding[20,21] and genetic used approaches[22,23] which will shape the future of the agriculture mainly toward solving hunger and food security problems worldwide.

The development of divers biochemical and biotechnological approaches will not only benefit food industry but also other areas such as pharmacy and cosmetology. Furthermore, recent finding such as the effect of chemicals on cells[24] will surely push further this area of research which will serve not only food industry but also pharmacy and chemical technology. However, efforts are still required and the collaboration between countries and the different laboratories working on that is an important factor in securing food productions and improving the properties of the products provided by the different food industries.

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