Study on the Quality Change of Cocoa Bean Processing Based on Sensory and Principal Component Analysis

Cocoa is an important tropical cash crop with unique flavor and abundant nutrients. It is widely used in chocolate, beverage, pastry and ice cream industries. Cocoa Bean Manufacturing Machinery

It is also known as the world's three major beverages along with coffee and tea.

Microwave drying machinery and equipment

It is also used in tobacco, cosmetics and medicines.

The processing of cocoa beans consists of three steps: fermentation, drying and roasting. During the process of fermentation, enzymatic browning produces flavor precursors and changes in color.

During the baking stage, some literatures have shown that 20 min~1 h and 120~150 C are the commonly used baking conditions for fermented cocoa beans.

During the baking process, cocoa beans undergo Maillard reaction, and amino compounds are combined with carbonyl compounds. Condensation of substances to produce characteristic flavor substances of cocoa beans

At present, the food flavor evaluation mainly adopts sensory evaluation method. The results of the evaluation are greatly influenced by the experience of the reviewers and external factors, with strong subjectivity, poor repeatability and large random error.

Odor fingerprint analysis is a new technology developed in recent years for complex media and samples with synergistic effects. The electronic nose system based on sensing matrix can simulate human olfaction to perceive odor.

The results of electronic nose detection are not the qualitative and quantitative results of various components of the tested sample, but the overall information of volatile components in the sample. It can analyze, identify and detect complex flavors and components. It has the advantages of fast and objective.

However, the sensor in electronic nose is a fixed detector and has systematic errors. The advantage and disadvantage of random extraction artificial evaluation in international cocoa bean trade were studied and analyzed. The electronic nose system combined with principal component analysis method was used to evaluate the quality of several international commodities of cocoa bean.

This method has the advantages of accuracy and rapidity. Fang Yiming et al.] The electronic nose analysis method used to study the effects of different fermentation methods and baking on

the flavor of cocoa beans can better distinguish the flavor differences of samples.

The combination of electronic sense organs and artificial sense organs can effectively reduce the errors of artificial random error and instrument system.

In order to study the effect of fermentation and roasting on the quality of cocoa beans, this experiment took Hainan cocoa beans as the research object, whether fermentation or not, roasting temperature as the influencing factors, determined the quality changes under different processing conditions by electronic nose, color difference meter and artificial sensory evaluation, provided theoretical reference for the optimization of cocoa beans Technology and quality selection, and optimized cocoa in China. Soybean processing technology and product quality are of great significance.