

Aroma and Enzyme Retention During Drying

S. YAMAMOTO

Yamaguchi University, Yamaguchi, Japan

SUMMARY

Many physical and bio-chemical changes occur during drying of liquid foods such as coffee. Among them, aroma loss and enzyme inactivation (or protein denaturation) are most important subjects to be considered in food industries.

Our study showed that the aroma is lost at the beginning of the drying (the constant-drying rate period). After this period the enzyme is inactivated sharply. We also found that the aroma retention increases with an increase in the molecular weight of the dissolved solid, which is understandable by the selective diffusion theory, and that the protective power of the dissolved solid to the enzyme retention is different from solid to solid, which is not easily systematised.

The computer simulation program was developed to predict the aroma and the enzyme retention during drying. However, as the determination of the transport properties such as diffusivity needed in the simulation is difficult and time consuming, simple approximate prediction methods are required. In addition to the losses predicted by this model, there may be some additional losses in the actual drying processes, which must be considered carefully.