

3rd International conference on Agricultural and Food 発表

題名 ; Rheological Properties of Margarine and Its Application to Cookie Production

氏名 ; ○Yuzuki MORIYA ¹⁾ , Yoshimune HASOME ²⁾ , Yoshio HAGURA ¹⁾ , Kiyoshi KAWAI ¹⁾

所属 ; ¹⁾ Biosphere Science, Hiroshima University

²⁾ The Nisshin Oillio Group, Ltd.,

Rheological properties of margarine are commonly characterized by solid fat content (SFC). However, it is difficult to predict effect of margarine on the rheological properties of multicomponent food system based on SFC. Dynamic mechanical analysis can evaluate viscoelastic properties such as storage modulus (G') and loss modulus (G''), and they are expected to be more effective than SFC. The purpose of this study was to understand the relationship between SFC and viscoelastic properties of margarine. In addition, effect of margarine on the viscoelastic properties of cookie dough and the textural properties of cookie was investigated.

Four types of butter and margarine with varying SFC were employed. Viscoelastic properties of the butter and margarine and cookie dough were evaluated using a rheometer. Texture properties (hardness and brittleness) of cookie were investigated using a texture meter.

A clear correlation between SFC and $\log G'$ of butter and margarine was found. The G'' was also similar behavior to G' . Based on the results, the G' and G'' of cookie dough could be predicted according to their additive property. This suggests that the viscoelastic properties of cookie dough are strongly affected by those of butter and margarine. On the other hand, a roughly positive correlation was found between the viscoelastic properties of cookie dough and texture properties of cookie. It is thought that texture of cookie is affected not only by the viscoelastic properties of butter and margarine, but also by other factors such as moisture content and porosity of cookie.