

Details of Technology

Name of Technology	Alternative oils and fats to emulsifiers used in foods	Food
Name/Post/Faculty	Makoto Miura / Associate Professor / Academic Group of Applied Life Sciences, Biological Chemistry and Food Science, Faculty of Agriculture	
Key words	emulsifiers, oils and fats, hydrolysis, processed foods	

What kind of technology is this?

Outline

Alternative oils and fats to emulsifiers for foods, food additives

The consumers have disliked food additives from the food safety security point of view and the food industry has been required to use alternative food materials to food additives. Although the emulsifiers for foods used in various processed foods are the high-safety food materials, the consumers have a tendency to dislike it. The product produced by the present technology is a powdered oils and fats prepared by using edible oils and fats from plants improved by the enzyme treatment together with saccharides.

Edible plant oils and fats and saccharides are only used as the raw materials.

The alternative is manufactured by preparing an oil-in-water (o/w)-type emulsion using edible plant oils and fats improved by the enzymatic (lipase) treatment to be contained natural emulsifiers together with saccharides, and by spray drying the emulsion.

Good dispersibility into water

Since the alternative is a powder prepared by coating the surface of the improved edible plant oils and fats with saccharides, the alternative exhibits good water dispersion.

What are its applications?

By dividing the edible plant oils into ① palmitic acid and stearic acid-type oils and fats (extremely hydrogenated palm oil), ② palmitic acid and oleic acid-type oils and fats (palm oil) and ③ stearic acid-type oils and fats (extremely hydrogenated soybean oil), they can be used as the alternative oils and fats to the existing emulsifiers with various functions.

- ① palmitic acid- stearic acid-type oils and fats

This-type alternative can be used by adding to the wheat flour products (increase in expansion, addition of softness, retardation of hardening), rice flour food (retardation of hardening), frozen foods (inhibition of freezing-induced protein denaturation and retardation of starch retrogradation), etc.

- ② Palmitic acid and oleic acid-type oils and fats

This-type alternative can be used by adding to creams (improvement in foaming property and air-cell retention) and tofu (antifoaming action).

- ③ stearic acid-type oils and fats

This-type alternative can be used by adding to noodles (improvement of texture and inhibition of cooking loss during boiling process), deep fat fried foods (improvement of texture and inhibition of detachment of fried coating and fried seeds) and fish and animal meat paste products (homogenous blending, binding and inhibition of syneresis).

Related patents

Related materials

The 54th annual meeting of the Japanese Society for Food Science and Technology (2007) Abstract.