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### Application of Polyglycerol Mono-Fatty Acid Esters to Improve Breadmaking

[Yoshiro MIYAMOTO](#)<sup>1)</sup>, [Mitsuhiro SAKAMOTO](#)<sup>1)</sup>, [Tomoko MAEDA](#)<sup>2)</sup> and [Naofumi MORITA](#)<sup>3)</sup>

1) *Ako Laboratory, Research and Development Laboratory, Sakamoto Yakuhin Kogyo Co., Ltd.*

2) *Department of Life and Health Sciences, Hyogo University of Teacher Education*

3) *Laboratory of Food Chemistry, Division of Applied Biochemistry, Graduate School of Agriculture and Biological Sciences, Osaka Prefecture University*

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The effects of polyglycerol mono-fatty acid esters (PGMFEs) on dough properties and baking were investigated using six PGMFEs with saturated fatty acid moieties (octanoic, decanoic, lauric, myristic, palmitic, and stearic acids). The addition of the PGMFEs (0.5% w/w of flour) to dough significantly increased its resistance, retention of the generated gas, and the volume of bread compared to loaves baked with the addition of monoglycerides and the control. These effects increased with a decrease in the chain length of the fatty acid moiety of the PGMFEs. Microscopic observation of the fermented dough with the PGMFEs showed that the gluten matrix became thick and that most of the starch granules were sufficiently covered with the gluten matrix as compared with the control. Also, addition of the PGMFEs with palmitic or stearic acid moieties retarded firmness in bread like that of bread baked with monoglycerides. These results indicated that the addition of PGMFEs as dough-conditioners promoted gluten formation and retarded the firming of bread by acting as a softener.

**Keywords:** [dough](#), [breadmaking](#), [dough-conditioner](#), [softener](#), [gluten](#), [polyglycerol mono-fatty acid esters \(PGMFEs\)](#)

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