〈原　著〉

ポリペプチド脂肪酸誘導体の表面張力[1)]

藤井まき子*，黒米　千尋*，鈴木　洋治*，吉岡　正人**，松本　光雄*

Surface Tension of Acyl Polypeptides

Makiko FUJII,* Chihiro KUROYONE,* Yoji SUZUKI,*
Masato YOSHIOKA** and Mitsuo MATSUMOTO*

Abstract

We investigated the surface tension of acyl polypeptide solution. An aqueous solution of potassium cocoyl hydrolyzed collagen (ECP) showed low surface tension, 25 dyn/cm, even though its concentration was 0.01%. In the case of sodium or triethanolamonium salt, the surface tension was almost the same value as that in ECP aqueous solution. The difference of ECP molecular weight from 650 to 500 did not affect on the surface tension. When the polypeptide whose origin was milk casein, 0.1 and 1% solution showed similar surface tension to ECP solution, but when its concentration was 0.01%, the surface tension was 31 dyn/cm. It suggests that critical micelle concentration might be changed by amino acid composition of polypeptide. When the acyl chain was lauric acid, one of the main components of cocoyl fatty acid, or myristic acid, the surface tension was similar to that of ECP. However, when the acyl chain was unsaturated one, undecylenoic acid or oleic acid, the surface tension was c.a. 30 dyn/cm. Thus, the origin of polypeptide, and acyl chain affected on surface tension.

To understand the effect of other surfactants on the surface tension, sodium lauryl sulfate (SLS), polyoxyethylene (10) oleylether (BO-10) or polyoxyethylene (20) sorbitan monooleate (TO-10) was added in the same concentration to ECP solution. SLS did not affect on surface tension of ECP solution. However, when BO-10 was added, surface tension of the solution was as high as that of BO-10 alone, 30 dyn/cm. TO-10 and ECP combination showed the medium surface tension of both. Thus the selection of co-surfactants was important to take advantage of surface activity of acyl polypeptide.

Keywords: acyl polypeptide; surface tension; structure effect; combination with other surfactant.