



## Development of Novel Marine Microbial exopolysaccharide with High Emulsifying Ability

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## Development of Novel Marine Microbial exopolysaccharide with High Emulsifying Ability

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A marine bacterial strain, *Alteromonas* sp.00SS11568 was isolated from biofilm samples collected in coastal regions of South Sea, Korea. This strain produced exopolysaccharide, designated as p-11568, which exhibited emulsifying ability. The p-11568 was found to consist of glucose and galactose as main natural sugars with the molar ratio of these sugars being 1.3:1 with uronic acid (18.9%, w/w) and sulfate groups (1.2% w/w) approximately. The average molecular mass was  $4.4 \times 10^5$  daltons by gel filtration chromatography. Emulsification Index ( $E_{24}$ ) of 0.1% p-11568 was 77.4% with emulsified kerosene content and higher than those of commercial polysaccharides such as xanthan gum (26.1%), gellan gum (1.3%) and sodium alginate (2.0%), respectively. The intrinsic viscosity of p-11568 was 12.9 g/dl and 12.5 g/dl by Huggins and Karamer equation and the overlap of p-11568 was 0.29 g/dl. p-11568 conformation was similar with carboxymethylcellulose on the degree of rigidness ( $5.9 \times 10^{-2}$ ). Rheological behavior of p-11568 dispersions indicates the formation of an intermediate structure between a random-coil polysaccharide and a weak gel. Aqueous dispersions of p-11568 at the concentrations ranging from 0.1 % to 1.0 % (w/v) showed marked shear-thinning properties as Power-law behavior. In aqueous dispersions of 1.0% p-11568, consistency index (K) and flow behavior index (n) were 4,404 and 0.42, respectively. The p-11568 was stable to pH, salts (NaCl and CaCl<sub>2</sub>) and temperature.