

Expansion of structure and function of yeast glycolipid biosurfactants

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Biosurfactants (BS) are functional amphiphilic compounds produced by a variety of microorganisms. They show unique properties (e.g. mild production conditions, multifunctionality, higher biocompatibility and environmental compatibility) compared to chemically synthesized counterparts. BS have thus been receiving increasing attention as environmentally advanced surfactants. Mannosylerythritol lipids (MELs), which are amphiphilic glycolipids abundantly produced by yeasts from vegetable oils, are one of the most promising BS because of their excellent surface-active properties and versatile biochemical actions. However, the structural variety of MELs hitherto discovered still remains limited; this makes the broad range of their applications difficult. We thus have continuously developed new types of MELs with different structures and functions.

In this study, we have newly prepared MEL-D, which has no acetyl groups in the hydrophilic sugar moiety, and new diastereomers having the carbohydrate configuration different from the conventional MELs. These novel MEL homologs show specific self-assembling properties and biological actions. Based on their unique properties, they would be expected to apply to pharmaceutical and cosmetic fields.