

Regulation of Osmo-Stress Response of Microorganism in Relation to Fermentation

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Summary

The microbes inhabiting hypertonic environments have various osmo-resistant systems. One of them is well explored as a high-osmolarity glycerol mitogen-activated kinase pathway (HOG pathway) for *Saccharomyces cerevisiae*. In this system glycerol is produced as an osmoregulatory compatible solute. Recently we found that *Trichosporonoides megachiliensis*, isolated from dry fruits, contain a similar osmo-resistant system. In this case, however, the compatible solute is not glycerol but erythritol, which is widely used as a food ingredient especially as a low calorie sweetener. The metabolic regulation of erythritol production may bring a new insight into osmo-regulating response in microbes, although it is still not fully elucidated.