Salt Tolerance and Energy Metabolism in Cultured Mangrove Cells

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As the suspension-cultured *Bruguiera sexangula* cells have tolerance to salt, these cells are useful materials for the biochemical studies of salt tolerance at the cellular level. In the present study, we characterized the glycolysis of these mangrove cells and compared them with those of a salt sensitive *Catharanthus roseus* cells previously reported. The mass action ratio (Γ) of each reaction step calculated from the cellular concentration of metabolites and maximum catalytic activity of each enzyme of these mangrove cells are similar to those of *C. roseus*, except that activity of phosphofructokinase (PFK) was higher than that of pyrophosphate dependent phosphotransferase (PFP) in the mangrove cells. In contrast to the PFP from CAM plants, the mangrove PFP activity was fructose-2,6-bisphosphate (F2,6BP) dependent, and K_a value for F2,6BP was 10 nM. Significant activity of both pyruvate kinase and phosphoenolpyruvate carboxylase, an alternative enzyme for glycolysis, was detected. When mangrove cells were transferred to the culture medium including 150 mM NaCl, rise of respiration was observed. This may be caused by the "fine control" of PFK. In the mangrove cells grown in 100 mM NaCl, the activities of PFK, PK and PFP were 2-3 fold higher than those of cells grown without NaCl. While, no difference was found in PFP and phosphatase activities. Activities of PFP and PFK examined *in vitro* were stimulated by up to 150 mM NaCl.