ON THE MEMBRANE FLUIDITY IN HYDROSTATIC PRESSURIZED YEAST

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Facing severe environmental changes, yeast cells trigger a set of response that protect them against the potential deleterious effects. Unlike other fungi, the predominant unsatured fatty acids in *Saccharomyces cerevisiae* are palmitoleic ($C_{16:1}$) and oleic ($C_{18:1}$). In this work *S. cerevisiae* mutant, deleted on ole 1 gene, therefore desaturase deficient, was grown in rich media with different concentrations of fatty acids and submitted to pressure up to 220 MPa for 30 min. Desaturase-deficient yeast supplemented only with palmitoleic acid clearly demonstrated to be more sensitive to different pressures when compared to cells supplemented only with oleic acid or with a proportion of both acids. Moreover, cells that were grown with linoleic acid ($C_{18:2}$) and linolenic acid ($C_{18:3}$) were more resistant than cells treated with oleic acid. Actually, the addition of a fatty acid with 3 unsaturations, linolenic acid, potentialyzed the acquired resistance of the cells. The differences in the piezo resistance observed for the mutant cells were related to the carbonic chain size and to the number of unsaturations in the fatty acids. In conclusion, we found that the alteration in the cell membrane fluidity was correlated with pressure resistance in yeast.

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