Why does sake yeast produce high concentration of ethanol?

Sake yeast produces higher concentrations of ethanol during sake fermentation than other yeast strains, e.g., laboratory yeast, do, while both sake and laboratory yeast strains belong to the species *Saccharomyces cerevisiae*. Ethanol produced by yeast is a stress factor for itself, and high concentration of ethanol inhibits the fermentation of yeast. Thus, it has been expected that sake yeast strains are strongly resistance to stress.

We compare the stress resistance of sake and laboratory yeast strain. Surprisingly, the sake yeast was more sensitive to stress because of the defects of environmental stress responses. A yeast strain which is sensitive to stress produces high concentrations, because it does not stop fermentation in response to the stress.

Probably, yeast strains with higher fermentation ability have been selected and used widely through long history of sake making. Contrary to expectations, sake yeast is sensitive to stress, and we have to pay attention to such properties of sake yeast.

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