MAGNETIC FIELD EFFECT ON YEAST Saccharomyces cerevisiae ACTIVITY AT GRAPE MUST FERMENTATION

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Treatment of yeast cultures using magnetic fields enables us to gain a better understanding of the magnetic fields’ action on enzyme activity and the fluctuation of macro- and micro-element concentrations within yeast cultures. For this purpose, the two following groups of yeast were studied: laboratory yeast cultures isolated from regional grape must and commercial yeast cultures that are commonly used in the wine industry. Both yeast groups were biochemically tested with and without magnetic field treatment exposure. We used the following parameters of magnetic field frequency: 160 Hz with an intensity of 5 mT and an exposure time of 30 minutes. Based on our laboratory tests, the yeast cultures that were not exposed to magnetic field treatment had a high correlation between the activities of alcohol dehydrogenase and cocarboxylase. The groups of yeast that underwent magnetic field treatment had a high correlation between the activities of alcohol dehydrogenase, alanine aminotransferase, amylase and phosphatase.

Study of the morphology of *Saccharomyces cerevisiae* yeast followed by magnetic field treatment illustrated that between 30 and 70% of the magnetic field treated yeast died. The surviving yeast cultures in the grape must (confirmed by Gram staining) revealed increased enzymatic activity and a high correlation between levels of potassium and calcium, as well as between levels of potassium and magnesium.

**Key words:** *Saccharomyces cerevisiae*, enzyme activity, macro- and micro-elements, wine biotechnology.

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